Summary Report for Group II Potential Release Locations, Environmental Baseline Survey

FORMER MARINE CORPS AIR STATION EL TORO, CALIFORNIA

MARCH 2005

Base Realignment and Closure
Program Management Office West
1230 Columbia Street, Suite 1100
San Diego, CA 92101

Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0104

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March 2005

Prepared for:
Base Realignment and Closure
Program Management Office West
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Prepared under:
Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0104

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ACRONYMS AND ABBREVIATIONS

BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
Cal-modified	California-modified
CFR	Code of Federal Regulations
COPC	chemical of potential concern
EBS	environmental baseline survey
EPA	Environmental Protection Agency
EPC	exposure point concentration
HI	hazard index
HQ	hazard quotient
MCAS	Marine Corps Air Station
NFECP PEARL	Naval Facilities Engineering Command, Pacific
NFECSW SDIEGO	Naval Facilities Engineering Command, Southwest
NFI	no further investigation
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
pH	negative logarithm of hydrogen ion concentration
PRG	preliminary remediation goal
PRL	potential release location
SRU	silver recovery unit
SVOC	semi-volatile organic compound
THQ	target hazard quotient
TPH	total petroleum hydrocarbon
TCR	target cancer risk
VOC	volatile organic compound
VSI	visual site inspection

1. Introduction

This summary report presents the results of environmental investigations conducted at 5 potential release locations (PRLs) at the former Marine Corps Air Station (MCAS) El Toro, California. The investigations included review of available records, visual site inspections (VSIs), and soil sampling. Based on the results of these investigations, this report provides an evaluation of environmental conditions and indicates whether significant releases of hazardous substances have occurred into the environment at these PRLs.

The environmental investigations of PRLs were initiated by the Southwest Division, Naval Facilities Engineering Command (NFECSW SDIEGO, formerly abbreviated as SWDIV) as authorized by the Base Realignment and Closure (BRAC) Cleanup Team (BCT) in a meeting held on 29 September 2004 at Former MCAS El Toro. During this meeting, the BCT authorized NFECSW SDIEGO to prepare investigation plans and perform field investigations of the PRLs at the former MCAS El Toro without prior approval from the BCT. The main purpose of this was to expedite the assessment of the PRLs. NFECSW SDIEGO is responsible for evaluating each PRL, preparing the most appropriate sampling plan, assessing whether a release has occurred, conducting site investigations, and submitting final summary reports with conclusions and recommendations to the BCT.

The investigations reported in this document are substantially equivalent to the preliminary assessment pursuant to the National Oil and Hazardous Substances Contingency Plan in Title 40 Code of Federal Regulations (CFR), Section (§) 300.410 (a) and (c), and 40 CFR § 300.420 (a) and (b). The investigations are also substantially equivalent to the investigations of real property pursuant to Community Environmental Response Facilitation Act, Public Law 102-425, 19 October 1992, as it amends Section 120(h) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

This document was prepared for NFECSW SDIEGO, as authorized by the Pacific Division, Naval Facilities Engineering Command (NFECP PEARL, formerly abbreviated as PACNAVFAC-ENGCOM) under contract task order no. 0104 of the Comprehensive Long-Term Environmental Action Navy II program, contract no. N62742-94-D-0048.

2. Background

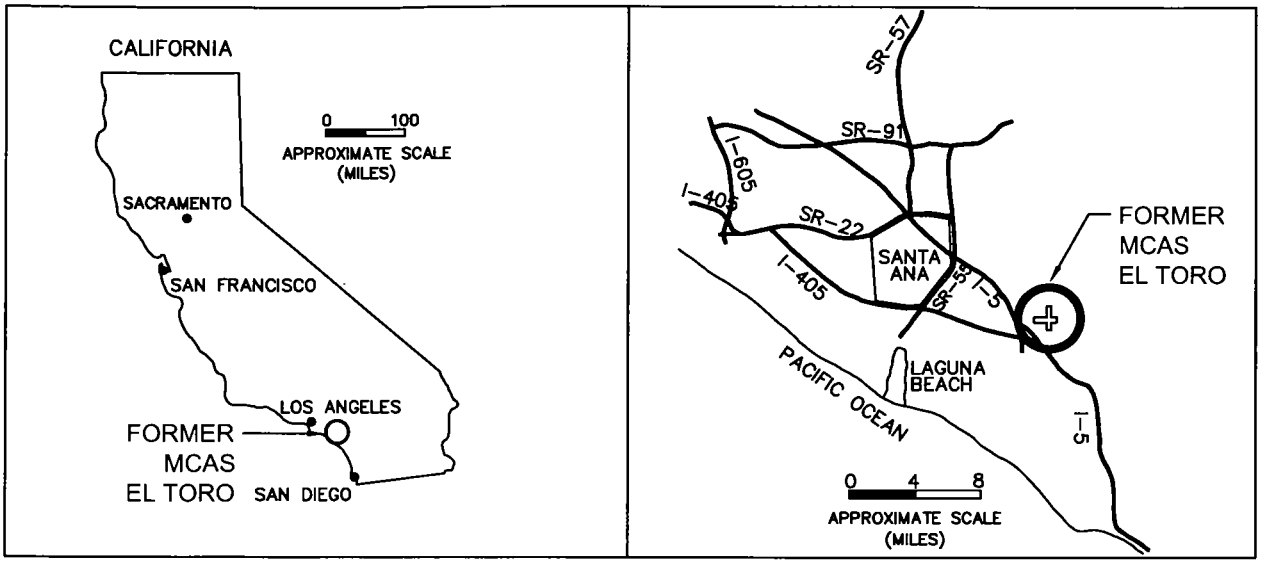
2.1 MCAS El Toro Background

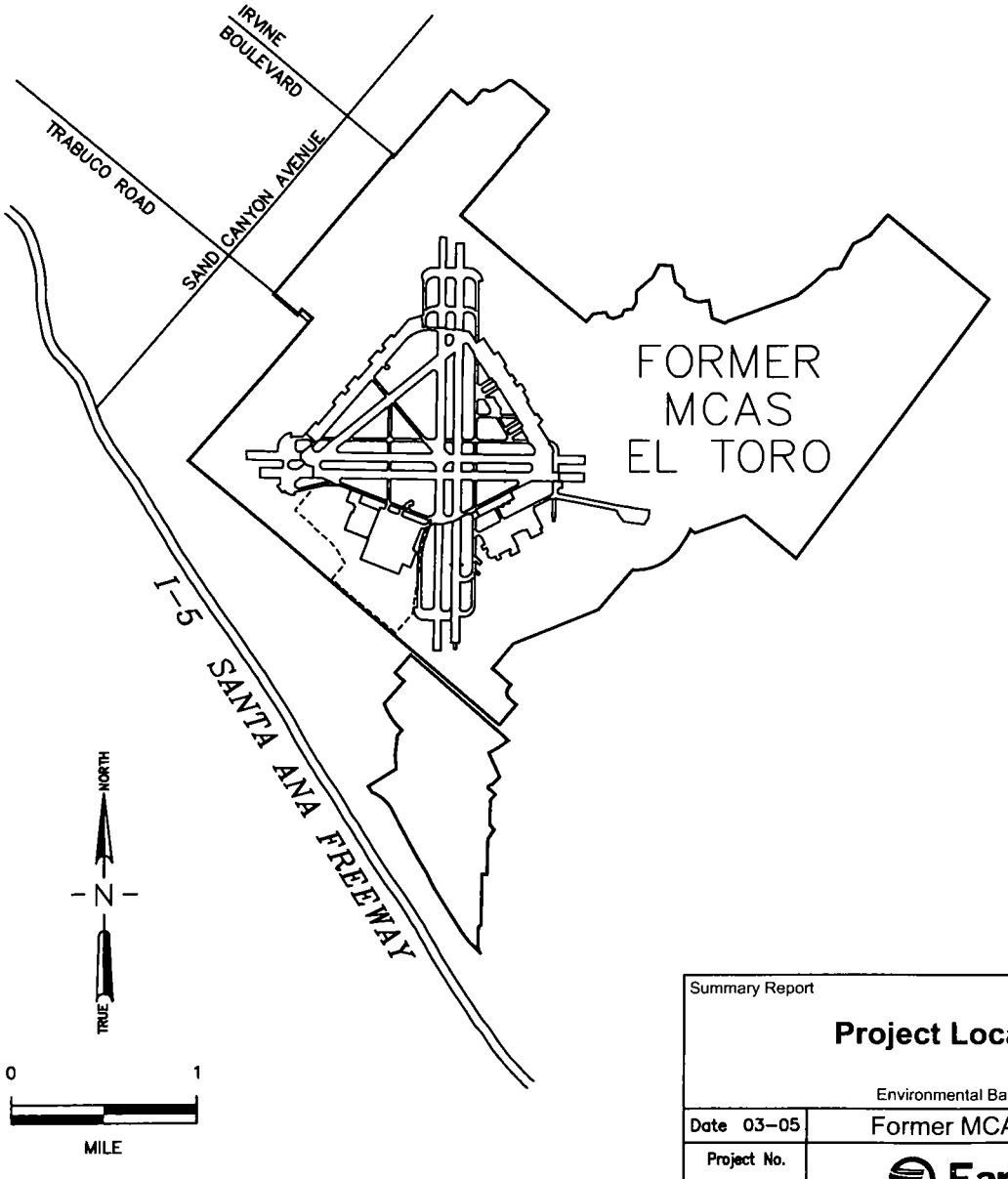
Former MCAS El Toro is located in south-central Orange County, California, approximately 8 miles southeast of Santa Ana and 12 miles northeast of Laguna Beach (Figure 1). Former MCAS El Toro covers approximately 4,738 acres. Land use around former MCAS El Toro includes commercial, light industrial, agricultural, and residential. MCAS El Toro closed on 2 July 1999, as a part of the BRAC Act.

2.2 PRL Investigation Background

During the 2003 environmental baseline survey (EBS), 76 facilities/features were identified at the former MCAS El Toro as being associated with a potential release of contaminants to the environment (Earth Tech 2003a). These facilities or features were assigned PRL designations because of one or more of the following factors:

- Records reported a release of hazardous substances to the environment.





Summary Report **Project Location Map** Environmental Baseline Survey		
Date 03-05	Former MCAS El Toro	Figure 1
Project No. 54506	EarthTech A Tyco International Ltd. Company	

File: L:\work\54506\work\EBS\CAD\PA\Non-transferrable_PRLs\SummaryReports\Group II\Final\Figure 1.dwg Time: Mar 31, 2005 - 7:48am

- Observations during the VSI conducted in 2002 indicated a potential release of hazardous substances to the environment.
- Activities undertaken during operation of the station had a high probability of releasing hazardous substances to the environment.

The sites identified were designated as "PRL," followed by the associated building number or feature (e.g., 296, Railroad, etc.). None of these PRLs were identified by previous investigations or surveys, with the exception of PRL 46 (Silver Recovery Unit [SRU] 03A), PRL 133 (SRU 03B), PRL 312 (SRU 03), and PRL 439 (SRU 010). These PRLs were previously identified as SRU locations of concern and were considered for further evaluation as PRLs to investigate the SRU and associated potential releases at these facilities.

Twenty-three of the 76 PRLs were investigated in 2003, and one PRL (PRL 400) was investigated in February 2004. The results of the 2003 investigations are presented in the final report for the EBS (Earth Tech 2003a), and the results for the 2004 investigation are presented in a draft technical memorandum (Earth Tech 2004a). Of those investigated, 17 PRLs were found to have no significant release and the regulatory agencies concurred that no further investigation was required.

For management purposes, the remaining 59 PRLs will be addressed in four groups. Group I comprised of 16 PRLs: PRL 22, PRL 47, PRL 105, PRL 114, PRL 118, PRL 245/246, PRL 374, PRL 442, PRL 617/618, PRL 658, PRL 671/672, PRL 673, PRL 886/887, PRL 1585, PRL 1601, and PRL Runway Infield Area. The sampling for Group I of the PRLs was conducted in October 2004, and the results of the investigations are provided in a summary report (Earth Tech 2005). Group II is comprised of 5 PRLs: PRL 51, PRL 310, PRL 370, PRL 445, and PRL 923. The sampling for Group II of the PRLs was conducted in January 2005, and the results of the investigations are provided in this summary report. The investigation results for the remaining two groups will be presented in subsequent summary reports.

3. Investigation Methodology

For each Group II PRL, records review, VSIs, and/or soil sampling were conducted to evaluate whether the release of hazardous substances or pollutants into the environment has occurred. The purpose of the records review and VSI was to identify environmentally significant issues. If any environmentally significant issue was identified, soil sampling for further assessment of the release was performed. If no environmentally significant issue was identified, no further investigation was recommended for the location.

3.1 Sampling Methodology

Once the environmentally significant issues were identified for each PRL, a sampling program was designed to assess whether a significant release of hazardous substances occurred. Sample locations were selected based on the following criteria:

- Where a report or visual evidence of a direct release of hazardous substance to the environment existed, such as stained soil or stressed vegetation, soil samples were collected at that location.
- Where a report or visual evidence of a release existed on concrete or pavement, such as significant staining, etching, or corrosion, soil samples were collected below the bottom of the floor slab or pavement.

- Where past operations involved the use of hazardous substances and the presence of features such as sumps, floor drains, storm drains, cracks, or pits may have resulted in the release of these substances to the environment, soil samples were collected in the vicinity of the features.
- Where evidence of direct releases of hazardous substances containing heavy metals to the sewer via drain pipes existed based on information on past activities or operations, samples of the drain pipe contents were collected and/or soil samples were collected beneath or adjacent to the drains. Drain samples were only analyzed for specific metals related to the substances used at the facility.

3.2 LABORATORY ANALYSIS AND QUALITY ASSURANCE

Laboratory analysis and data validation were performed in accordance with the specifications and requirements of the *Draft Work Plan* (Earth Tech 2002) and subsequent *Sampling and Analysis Plan Amendment No. 1* (Earth Tech 2004b). Laboratories solicited for this project successfully completed evaluation by the Naval Facilities Engineering Service Center. Laboratory performance was further evaluated through data package reviews and oversight by the project chemist.

Data reported in the project report are flagged with the following appropriate qualifiers to indicate the usability:

- J estimated concentration
- N presumptive evidence of the identification of an analyte
- R rejected data (unusable)
- U not detected above laboratory reporting limit

Combinations of qualifiers such as UJ and NJ are possible. Where the validation qualifiers affect the project decision recommendations, the individual PRL reports discuss the issues and the uncertainty or qualifications of the conclusions.

3.3 RISK SCREENING METHODOLOGY

Risk screening was performed for each Group II PRL to evaluate the risks associated with potential exposures to chemicals identified in the soil at each PRL. The results of this risk screening are presented in the summary reports for individual PRLs provided as attachments to this report.

The approach used for the risk screening consisted essentially of three elements: selection of chemicals of potential concern (COPCs), exposure point concentration (EPC) quantification, and risk quantification.

3.3.1 Selection of COPCs

For each PRL, COPCs were identified as the chemicals that were detected in at least one sample and have Environmental Protection Agency (EPA) Region 9 or California-modified (Cal-modified) cancer or noncancer residential preliminary remediation goals (PRGs) (EPA Region 9 2004).

3.3.2 EPC Quantification

The maximum detected concentrations of COPCs were used as EPCs (maximum EPCs) for risk screening.

3.3.3 Risk Quantification

For each PRL, maximum excess (incremental) cancer risk using maximum EPC and a respective carcinogenic PRG was estimated using the following formula:

$$Excess\ Cancer\ Risk\ =\ TCR \times \frac{EPC_i}{PRG_i}$$

where:

TCR = The target incremental lifetime cancer risk of 10^{-6}

EPC_i = Maximum EPC for $COPC_i$

PRG_i = EPA Region 9 or Cal-modified PRG for $COPC_i$ in soils based on carcinogenic effects

A Hazard Quotient (HQ), using EPC and noncarcinogenic PRG, was calculated using the following formula:

$$HQ\ =\ THQ \times \frac{EPC_i}{PRG_i}$$

where:

THQ = The target HQ of 1

PRG_i = EPA Region 9 or Cal-modified PRG for $COPC_i$ in soils based on noncarcinogenic effects

The cumulative residential excess cancer risk for exposure to multiple COPCs at a PRL was estimated using the following equation:

$$Cumulative\ Excess\ Cancer\ Risk\ =\ \sum\left[TCR \times \frac{EPC_i}{PRG_i}\right]$$

The cumulative noncarcinogenic hazard index (HI) for exposure to multiple COPCs at a PRL was estimated as follows:

$$Cumulative\ Noncarcinogenic\ HI\ =\ \sum\left[THQ \times \frac{EPC_i}{PRG_i}\right]$$

4. Investigation Results and Recommendations

The investigation results, conclusions and recommendations for all Group II PRLs are presented in summary reports provided as attachments to this report. The attachments are organized as follows:

- Attachment 1: Summary Report – PRL 51
- Attachment 2: Summary Report – PRL 310
- Attachment 3: Summary Report – PRL 370

- Attachment 4: Summary Report – PRL 445
- Attachment 4: Summary Report – PRL 923

Table 1 presents an assessment summary and final recommendation for the Group II PRLs.

Table 1: Summary of Assessments and Recommendations for Group II PRLs

PRL	Assessment Summary	Recommendation
51	Soil and drain samples analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), cadmium, chromium, cobalt, lead, mercury and negative logarithm of hydrogen ion concentration (pH). Hazardous material was identified in the drain.	It is recommended that the drain be emptied of all hazardous material.
310	Soil sample analyzed for VOCs, TPH, cadmium, chromium, cobalt, copper, lead, mercury, nickel, and zinc.	NFI
370	Soil sample analyzed for TPH, cadmium, chromium, copper, lead, mercury, nickel, and zinc.	NFI
445	Soil samples analyzed for TPH, VOCs and PAHs.	NFI
923	Soil sample analyzed for TPH and VOCs.	NFI

5. References

Earth Tech, Inc (Earth Tech). 2002. *Draft Work Plan Preliminary Assessment of Locations of Concern, Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* Honolulu, HI: NFECSW SDIEGO. May.

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_____. 2005. *Summary Report for Group I Potential Release Locations, Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* Long Beach, CA: NFECSW SDIEGO. February.

Environmental Protection Agency, United States, Region 9 (EPA Region 9). 2004. *EPA Region 9 PRGs* [Preliminary Remediation Goals] *Tables.* San Francisco, CA. October.

Attachment 1
Summary Report
PRL 51

Summary Report for PRL 51, Environmental Baseline Survey

Former Marine Corps Air Station, El Toro, California

March 2005

Prepared for:
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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
EPA	Environmental Protection Agency, United States
MCAS	Marine Corps Air Station
NFECSW SDIEGO	Southwest Division, Naval Facilities Engineering Command
PRG	preliminary remediation goal
PRL	potential release location
RCRA	Resource Conservation Recovery Act
SVOC	semivolatile organic compound
TAA	temporary accumulation area
TPH	total petroleum hydrocarbons
TPH_d	TPH as diesel
TPH_g	TPH as gasoline
TPH_m	TPH as motor oil
VOC	volatile organic compound

1. Background

Potential Release Location (PRL) 51 is associated with Building 51, located in the northwest quadrant of former Marine Corps Air Station (MCAS) El Toro, California (Figure 1). The building was listed as Storehouse in the 1948, 1949, 1950, and 1954 station lists and as Group Electronic and Ordnance Shop in the 1958 list. The latter use was for repairing and maintaining ordnance-related electronics; no live ordnance or explosives were handled in the facility. The facility description was Reserve Training Building in the 1973 list and subsequently changed to Auto Organizational Shop in the 1997 list. This is the last known description of the building. Figure 2 shows the plan of Building 51 and the surrounding area.

One location of concern is associated with this site. TAA 51 was a less-than-90-day temporary accumulation area. Stained soils and sampling indicated the presence of petroleum hydrocarbons. Soil removal was recommended and the site is under investigation.

1.1 Issues and Concerns

Following is the summary of the observations and conclusions of the visual site inspection and records review conducted in support of the 2003 Environmental Baseline Survey (NFECSW SDIEGO 2003).

- A wash rack area was identified northeast of Building 51. Further investigation was recommended to evaluate if a release to the soil of hazardous substances or pollutants has occurred via the storm drain due to washing operations.
- Past equipment and activities at the facility included a parts dip tank, a paint booth, and electronics supply and maintenance. Based on the historical use of the facility, hazardous products and pollutants were used at the facility and may have been released to the environment. Further investigation was recommended.
- The service sink in the Materiel Shop is a potential release location for hazardous substances or pollutants used in the facility. Further investigation was recommended.
- A grease trap was identified near the northwestern corner of Building 51. Further investigation was recommended to investigate if the release of hydrocarbons occurred in the vicinity of the grease trap.

A sampling program was proposed to further investigate the issues identified and assess whether hazardous substances or pollutants have been released to the environment. A summary of soil sampling activities is presented in Section 2, and the results are presented in Section 3.

2. Sampling and Analysis Summary

Sampling was conducted for evaluation of PRL 51 in January 2005. The sample locations are shown on Figure 2 and a summary of sampling and analyses is provided in Table 1.

Soil samples were collected at four locations, HA1, HA2, HA3, and DS1 at PRL 51. The sample at HA1 was collected adjacent to the storm drain in the former wash rack area northeast of the building. The sample was collected 3.5-4.0 feet below ground surface (bgs) by hand auger and analyzed for volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), and total petroleum hydrocarbons (TPH). The results for TPH were reported as TPH as gasoline (TPH_g), TPH as diesel

(TPH_d), and TPH as motor oil (TPH_m). The sample at HA2 was collected where the drainpipe from the service sink in the Material Office enters the ground. The sample was collected 3.5-4.0 feet bgs by hand auger and analyzed for VOCs, SVOCs, and TPH. The sample at HA3 was collected near the grease trap northwest of the building. The sample was collected 4.0-4.5 feet bgs by hand auger and analyzed for VOCs, SVOCs, and TPH. One drain sample, DS1, was collected from the service sink in the Materiel Shop. The sample was analyzed for paint-related metals (cadmium, chromium, cobalt, lead, and mercury).

3. Investigation Results

3.1 Analytical Results and Quality Assurance

The analytical results for the samples collected at PRL 51 along with the United States Environmental Protection Agency (EPA) Region 9 or California-Modified residential preliminary remediation goals (PRGs) are presented in Table 2 (EPA Region 9 2004). Appendix A presents the validated laboratory analytical data and Appendix B presents the land surveying data.

Some results were qualified as estimated in the data validation process. These qualifications do not affect the findings or conclusions of this report.

3.2 Result Evaluation and Risk Screening

TPH was detected in the soil sample from HA2. The contributor to the TPH detection was from the group of TPHs associated with motor oil. However, the concentration of TPH at HA2 is not indicative of a significant release. Furthermore, the detection is assessed to be representative of the maximum concentrations in soil as the sample was collected adjacent to the nearest source of release, the pipe invert for HA2.

No PRGs exist for TPH or its subcategories (i.e., TPH_g, TPH_d, and TPH_m), and other analytes with PRG values, including SVOCs and VOCs, were not detected above laboratory reporting limits. Therefore, no risk screening was conducted for PRL 51.

Drain sample DS1, collected from the service sink in the materiel shop, reported a lead concentration exceeding the corresponding Total Threshold Limit Concentration, classifying the material as a California-designated hazardous waste. The drain sample reported cadmium, chromium, lead, and mercury at concentrations exceeding the federal regulatory level for toxicity characteristics by a factor of 20, thereby making it likely that the material will be classified as Resource Conservation Recovery Act (RCRA) hazardous waste.

4. Conclusions and Recommendations

The primary objective of investigations conducted at PRL 51 was to assess whether a release of hazardous substances or pollutants into the environment has occurred. The concentrations of the TPH in the soil sample collected near the service sink do not indicate that there has been a significant release of hydrocarbons to the soil via the sewer system. Other analytes, including SVOCs and VOCs were not detected above laboratory reporting limits in any of the soil samples. Based on these results, no further investigation is recommended for PRL 51.

The material collected from the service sink in the Materiel Shop is classified as California-designated hazardous waste and would likely be classified as RCRA hazardous waste due to

concentrations of cadmium, chromium, lead and mercury. It is therefore recommended that the service sink material be tested for cadmium, chromium, lead and mercury by the EPA Toxicity Characteristic Leaching Procedure test method to determine whether it is RCRA hazardous waste or not. Subsequent to the classification of the sink material, it is also recommended that the sink drain be emptied of all the materials for appropriate disposal.

5. References

Drawing: Air Compressor Building and Layout of Pipings for Buildings No- 48, 49, 51, and 52. 26 June 1944.

Drawing: Station Map Showing Wash Aprons. P.W. DWG. No. D-2213.

Environmental Protection Agency, United States (EPA). 2004. *SW-846 On-Line, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm. Office of Solid Waste.

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MCAS El Toro, Public Work Department. 1960. Building 51, Alterations for S.O.E.S. Avionics, Arch. and Mech. Drawing No. PB 1626. 21 October.

Property Record: Architectural Floor Plan, Building No 51, Storehouse.

Southwest Division, Naval Facilities Engineering Command (NFECSW SDIEGO). 1993. *Marine Corps Air Station El Toro, California, Installation Restoration Program, Final RCRA Facility Assessment Report, Volume I.* San Diego. 16 July.

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_____. 2003. *Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* San Diego, CA. September.

Tables

Table 1: Sampling and Analyses Summary – PRL 51

Analytical Group and Method[a]	Sample Location	HA1	HA2	HA3	DS1
	EPA ID	LJ351	LJ354	LJ355	LJ366
	Sample Depth (ft bgs)	3.5-4	3.5-4	4-4.5	—
	Sampling Technique	Hand Auger	Hand Auger	Hand Auger	Jar Sample
Cadmium 6010B		—	—	—	X
Chromium 6010B		—	—	—	X
Cobalt 6010B		—	—	—	X
Lead 6010B		—	—	—	X
Mercury 6010B		—	—	—	X
VOCs 8260B		X	X	X	—
SVOCs 8270C		X	X	X	—
TPH[b] 8015B		X	X	X	—

Notes:
— = not applicable or not analyzed
ft bgs = feet below ground surface
X = analysis was performed for the specified analyte
[a] Analysis was in general accordance with the listed methods provided in EPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
[b] Analytical results for TPH were reported as TPH as gasoline (TPH_g) TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

Table 2: Analytical Results Summary - PRL 51

Analyte	MCAS El Toro Background Concentrations (95th Quantile)[a]	Residential Soil PRG[b]	RCRA Hazardous Waste RL[d] (mg/L)	RCRA Hazardous Waste 20 x RL[e] (mg/kg)	California Hazardous Waste TTLC[f] (mg/kg)	California Hazardous Waste STLC[g] (mg/L)	California Hazardous Waste 10 x STLC[h] (mg/kg)	Sample Location / Sample Depth / Sample Name	PRL 51- HA1 3.5-4 feet bgs LJ351	PRL 51-HA2 3.5-4 feet bgs LJ354	PRL 51-HA3 4-4.5 feet bgs LJ355	PRL 51-DS1 LJ365
Total Petroleum Hydrocarbons (mg/kg)												
TPH as Motor Oil	--	--	--	--	--	--	--		11 U	3 J	11 U	NA
Metals (mg/kg)												
Cadmium	2.35	37	1.0E+00	2.0E+01	1.0E+02	1.0E+00	1.0E+01		NA	NA	NA	27.9
Chromium	26.9	211	5.0E+00	1.0E+02	5.0E+02	5.0E+00	5.0E+01		NA	NA	NA	385
Cobalt	6.98	903	--	--	8.0E+03	8.0E+01	8.0E+02		NA	NA	NA	14.4
Lead[c]	15.1	150	5.0E+00	1.0E+02	1.0E+03	5.0E+00	5.0E+01		NA	NA	NA	2,590
Mercury	0.22	23	2.0E-01	4.0E+00	2.0E+01	2.0E-01	2.0E+00		NA	NA	NA	10
General Chemistry												
pH	--	--	--	--	--	--	--		NA	8.64	8.46	NA

Notes:

-- = Value does not exist

J = Indicates an estimated value

mg/kg = milligram per kilogram

mg/L = milligram per liter

NA = not analyzed

RCRA = Resource Conservation and Recovery Act

RL= regulatory limit

U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

[a] = Source: BNI, 1996

[b] = Analytical results were compared to EPA Region 9 PRGs (2004), with the exception of lead (see note c).

[c] = Analytical results for lead were compared to Cal-Modified PRG (2004) since it is significantly more protective than corresponding EPA Region 9 PRGs.

[d] Maximum concentration (mg/L) of contaminants for the toxicity characteristic determined by the Toxicity Characteristic Leaching Procedure (TCLP).

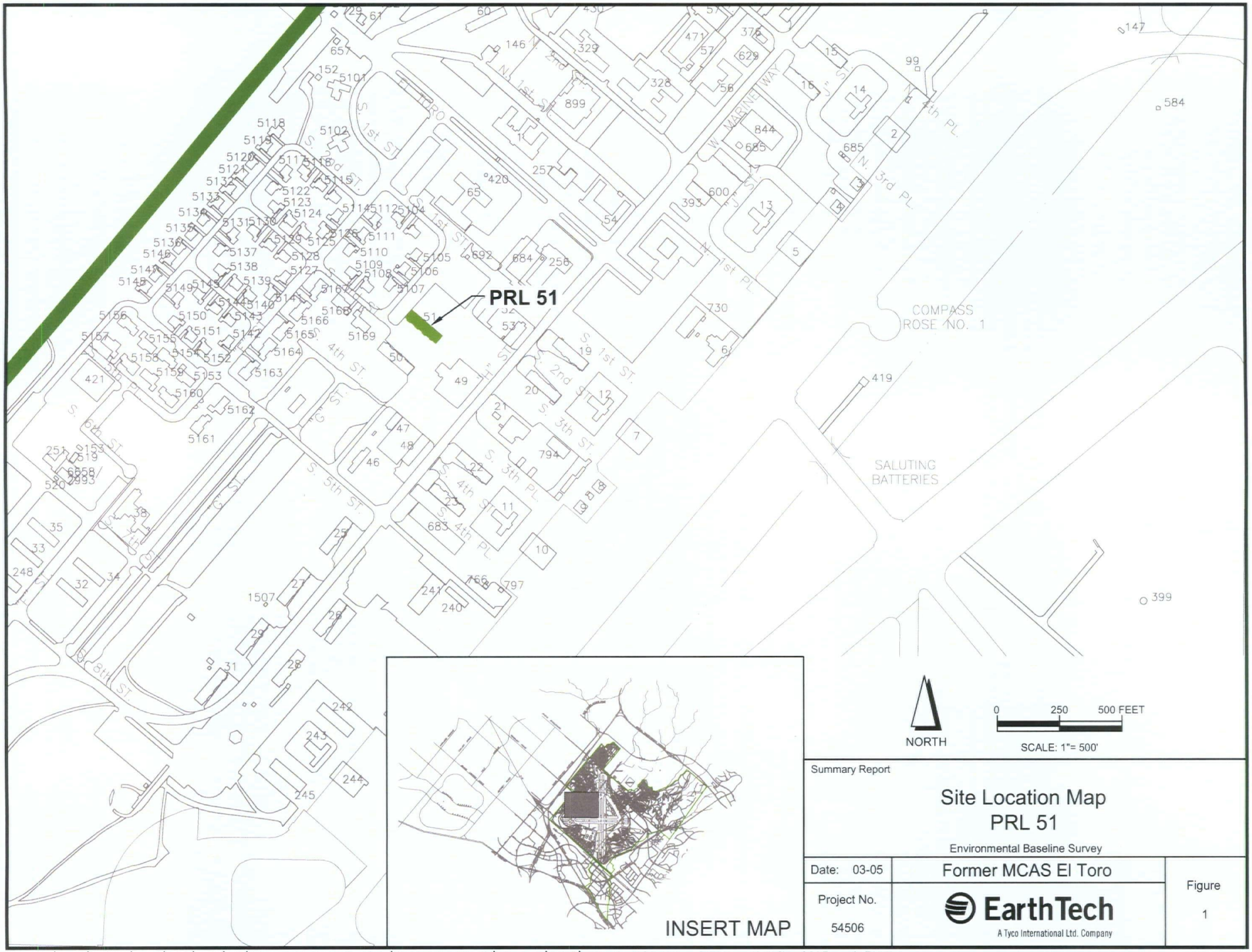
[e] Correction factor for estimating whether the concentration in a solid will exceed the RL.

[f] Total threshold limit concentration (mg/kg) (California Code of Regulations Title 22).

[g] Soluble Threshold Limit Concentration in milligrams per liter of waste extract determined using the Waste Extraction test (WET).

[h] Correction factor for estimating whether the concentration in a solid will exceed the STLC.

Figures



Summary Report

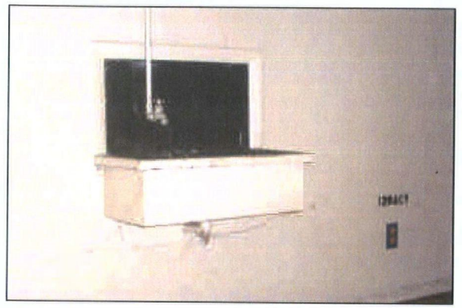
Site Location Map
PRL 51

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 1
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

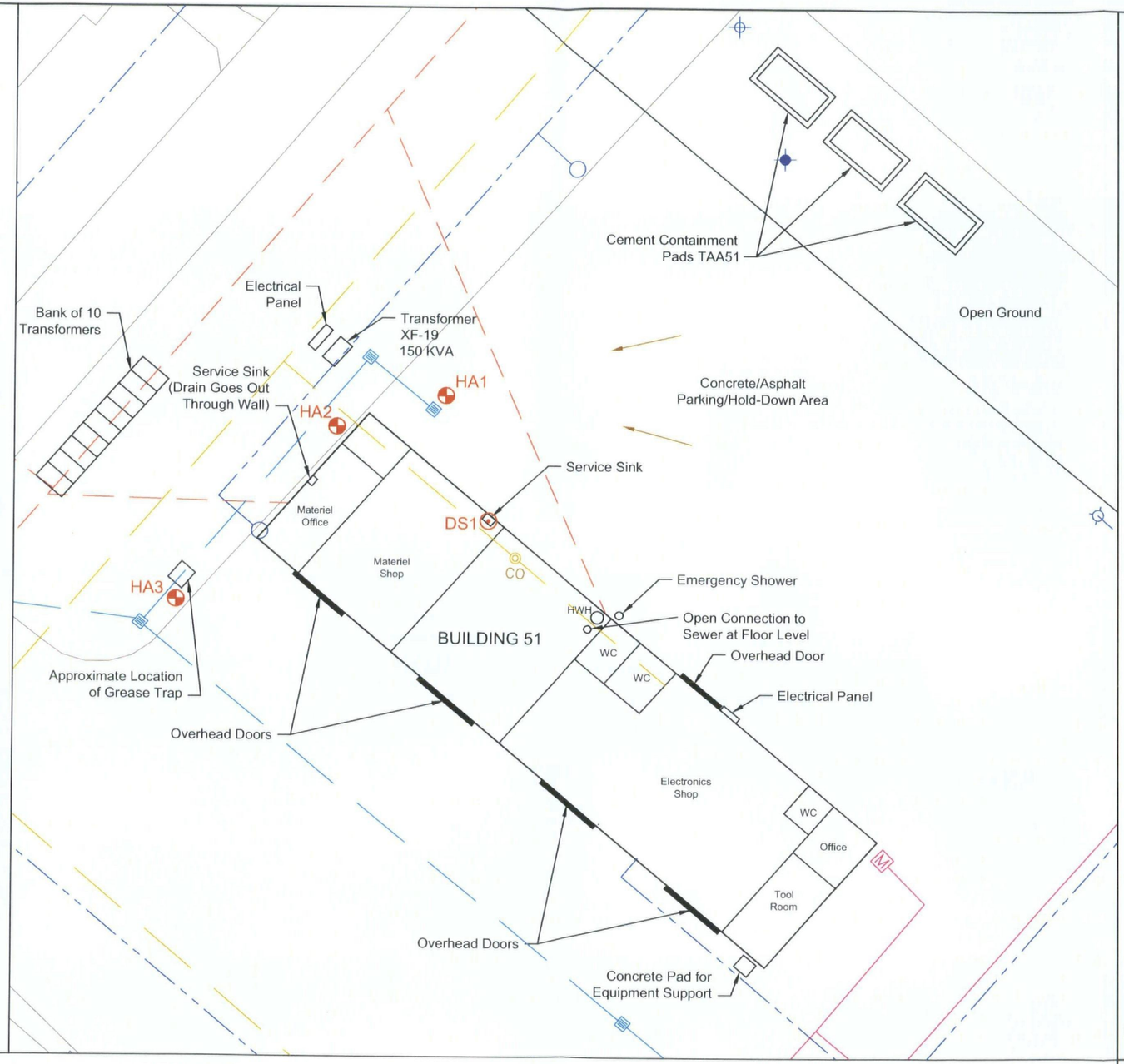
File: L:\work\54506\work\EBS\CAD\PA\Non-transferrable_PRLs\SummaryReports\Group II\Final\SR PRL 051.dwg Time: Mar 31, 2005 - 9:31am

Area with Grease Trap Northwest of Building 51
(Facing East)



Sink Relocated in Materiel Office
(Facing North)

Service Sink in Materiel Shop
(Facing Northeast)



LEGEND:

- Sanitary Sewer
- Water Line
- Natural Gas Line
- Electrical Line
- Storm Sewer
- FD Floor Drain
- WC Restroom
- HWH Hot Water Drain
- HA3 Proposed Soil Sample Location
- DS1 Proposed Drain Sample Location
- Fire Hydrant
- M Gas Meter
- Storm Drain
- Aboveground Spout
- Surface Drainage Direction]
- CO Clean Out

Approximate Soil Boring Locations (NFECSW SDIEGO, 1993) (Sample Depths: 10 - 60 ft bgs; Analytes: VOCs, SVOCs, TPH, Pesticides, PCBs, Metals, Cyanide)

Approximate Soil Boring Locations (NFECSW SDIEGO, 1993) (Sample Depths: 2 - 5 ft bgs; Analytes: VOCs, SVOCs, TPH, Pesticides, PCBs, Metals, Cyanide)

NORTH
0 15' 30 FEET
SCALE: 1"= 30'

Note: Features and Interior Layout are Approximate and May Not be to Scale

Summary Report

Site Plan
PRL 51

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 2
Project No. 54506	EarthTech A Tyco International Ltd. Company	

File: L:\work\54506\work\EBS\CAD\PA\Non-transferable_PRLs\SummaryReports\Group II\Final\SR_PRL_051.dwg Time: Mar 31, 2005 - 9:30am

Appendix A
Validated Laboratory Analytical Data Reports

Validated Analytical Data for PRL 51

		Sample ID:	LJ351	LJ354	LJ355	LJ366
		Location ID:	PRL51-HA1	PRL51-HA2	PRL51-HA3	PRL51-DS1
		Sample Type:	SS	SS	SS	Jar Sample
		Sample Depth:	3.5-4	3.5-4	4-4.5	
		Sample Date:	05-Jan-05	06-Jan-05	06-Jan-05	28-Feb-05
Parameter	Units	Analytical Method[1]				
Total Petroleum Hydrocarbons						
TPH as Diesel Fuel	mg/kg	8015B DRO	11 U	11 U	11 U	--
TPH as Motor Oil	mg/kg	8015B DRO	11 U	3 J	11 U	--
TPH as Gasoline	mg/kg	8015B GRO	9.4 U	8.7 U	12 U	--
Others						
Moisture	%	ASTM D 2216	12	9.5	11.4	5.4
pH	pH	9045	--	8.64	8.46	--
Metals						
Cadmium	mg/kg	6010B	--	--	--	27.9
Chromium	mg/kg	6010B	--	--	--	385
Cobalt	mg/kg	6010B	--	--	--	14.4
Lead	mg/kg	6010B	--	--	--	2,590
Mercury	mg/kg	7471A	--	--	--	10
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,1,1-Trichloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,1,2,2-Tetrachloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,1,2-Trichloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,1-Dichloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,1-Dichloroethene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,2-Dichloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,2-Dichloropropane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
1,2-Dichlorotetrafluoroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
2-Butanone	ug/kg	8260B	97 U	92 UJ	110 UJ	--
2-Hexanone	ug/kg	8260B	48 U	46 U	57 U	--
4-Methyl-2-Pentanone	ug/kg	8260B	48 U	46 U	57 U	--
Acetone	ug/kg	8260B	97 UJ	92 UJ	110 UJ	--
Benzene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Bromodichloromethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Bromoform	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Bromomethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Carbon Disulfide	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Carbon Tetrachloride	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Chlorobenzene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Chlorodibromomethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Chloroethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Chloroform	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Chloromethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
cis-1,2-Dichloroethene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
cis-1,3-Dichloropropene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Dichlorodifluoromethane (F12)	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Diisopropyl Ether	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Ethylbenzene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Ethyl-tert-butyl ether (ETBE)	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Methyl tert-butyl ether	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Methylene Chloride	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Styrene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
tert-Amyl methyl ether (TAME)	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
tertiary-Butyl alcohol (TBA)	ug/kg	8260B	19 UJ	18 UJ	23 UJ	--
Tetrachloroethene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Toluene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Total xylenes	ug/kg	8260B	14 U	14 U	17 U	--
trans-1,2-Dichloroethene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
trans-1,3-Dichloropropene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Trichloroethene	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Trichlorofluoromethane	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Vinyl chloride	ug/kg	8260B	4.8 U	4.6 U	5.7 U	--
Semi Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ug/kg	8270C	570 U	550 U	560 U	--
1,2-Dichlorobenzene	ug/kg	8270C	570 U	550 U	560 U	--

Validated Analytical Data for PRL 51

		Sample ID:	LJ351	LJ354	LJ355	LJ366
		Location ID:	PRL51-HA1	PRL51-HA2	PRL51-HA3	PRL51-DS1
		Sample Type:	SS	SS	SS	Jar Sample
		Sample Depth:	3.5-4	3.5-4	4-4.5	
		Sample Date:	05-Jan-05	06-Jan-05	06-Jan-05	28-Feb-05
Parameter	Units	Analytical Method[1]				
1,3-Dichlorobenzene	ug/kg	8270C	570 U	550 U	560 U	--
1,4-Dichlorobenzene	ug/kg	8270C	570 U	550 U	560 U	--
2,4,5-Trichlorophenol	ug/kg	8270C	570 U	550 U	560 U	--
2,4,6-Trichlorophenol	ug/kg	8270C	570 U	550 U	560 U	--
2,4-Dichlorophenol	ug/kg	8270C	570 U	550 U	560 U	--
2,4-Dimethylphenol	ug/kg	8270C	570 U	550 U	560 U	--
2,4-Dinitrophenol	ug/kg	8270C	2800 U	2800 U	2800 U	--
2,4-Dinitrotoluene	ug/kg	8270C	570 U	550 U	560 U	--
2,6-Dinitrotoluene	ug/kg	8270C	570 U	550 U	560 U	--
2-Chloronaphthalene	ug/kg	8270C	570 U	550 U	560 U	--
2-Chlorophenol	ug/kg	8270C	570 U	550 U	560 U	--
2-Methylphenol	ug/kg	8270C	570 UJ	550 UJ	560 UJ	--
2-Nitroaniline	ug/kg	8270C	2800 U	2800 U	2800 U	--
2-Nitrophenol	ug/kg	8270C	570 U	550 U	560 U	--
3,3'-Dichlorobenzidine	ug/kg	8270C	750 U	730 U	740 U	--
3-Nitroaniline	ug/kg	8270C	2800 U	2800 U	2800 U	--
4,6-Dinitro-2-Methylphenol	ug/kg	8270C	2800 U	2800 U	2800 U	--
4-Bromophenyl Phenyl Ether	ug/kg	8270C	570 U	550 U	560 U	--
4-Chloro-3-Methylphenol	ug/kg	8270C	570 U	550 U	560 U	--
4-Chloroaniline	ug/kg	8270C	1100 U	1100 U	1100 U	--
4-Chlorophenyl Phenyl Ether	ug/kg	8270C	570 U	550 U	560 U	--
4-Methylphenol	ug/kg	8270C	570 UJ	550 UJ	560 UJ	--
4-Nitroaniline	ug/kg	8270C	2800 U	2800 U	2800 U	--
4-Nitrophenol	ug/kg	8270C	2800 U	2800 U	2800 U	--
Bis(2-Chloro-1-Methylethyl)Ether	ug/kg	8270C	570 UJ	550 UJ	560 UJ	--
Bis(2-Chloroethoxy)Methane	ug/kg	8270C	570 U	550 U	560 U	--
Bis(2-Chloroethyl)Ether	ug/kg	8270C	570 U	550 U	560 U	--
Bis(2-Ethylhexyl)Phthalate	ug/kg	8270C	570 U	550 U	560 U	--
butyl Benzyl phthalate	ug/kg	8270C	570 U	550 U	560 U	--
Carbazole	ug/kg	8270C	570 U	550 U	560 U	--
Dibenzofuran	ug/kg	8270C	570 U	550 U	560 U	--
Diethyl Phthalate	ug/kg	8270C	570 U	550 U	560 U	--
Dimethyl Phthalate	ug/kg	8270C	570 U	550 U	560 U	--
Di-N-Butyl Phthalate	ug/kg	8270C	570 U	550 U	560 U	--
Di-N-Octyl Phthalate	ug/kg	8270C	570 UJ	550 UJ	560 UJ	--
Hexachlorobenzene	ug/kg	8270C	570 U	550 U	560 U	--
Hexachlorobutadiene	ug/kg	8270C	570 U	550 U	560 U	--
Hexachlorocyclopentadiene	ug/kg	8270C	2800 U	2800 U	2800 U	--
Hexachloroethane	ug/kg	8270C	570 U	550 U	560 U	--
Isophorone	ug/kg	8270C	570 U	550 U	560 U	--
Nitrobenzene	ug/kg	8270C	570 U	550 U	560 U	--
N-Nitroso-Di-N-Propylamine	ug/kg	8270C	570 U	550 U	560 U	--
N-Nitrosodiphenylamine	ug/kg	8270C	2800 U	2800 U	2800 U	--
Pentachlorophenol	ug/kg	8270C	1900 U	1900 U	1900 U	--
Phenol	ug/kg	8270C	570 U	550 U	560 U	--

Notes:

[1] = Environmental Protection Agency Method unless otherwise noted.

U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

J = Indicates an estimated value

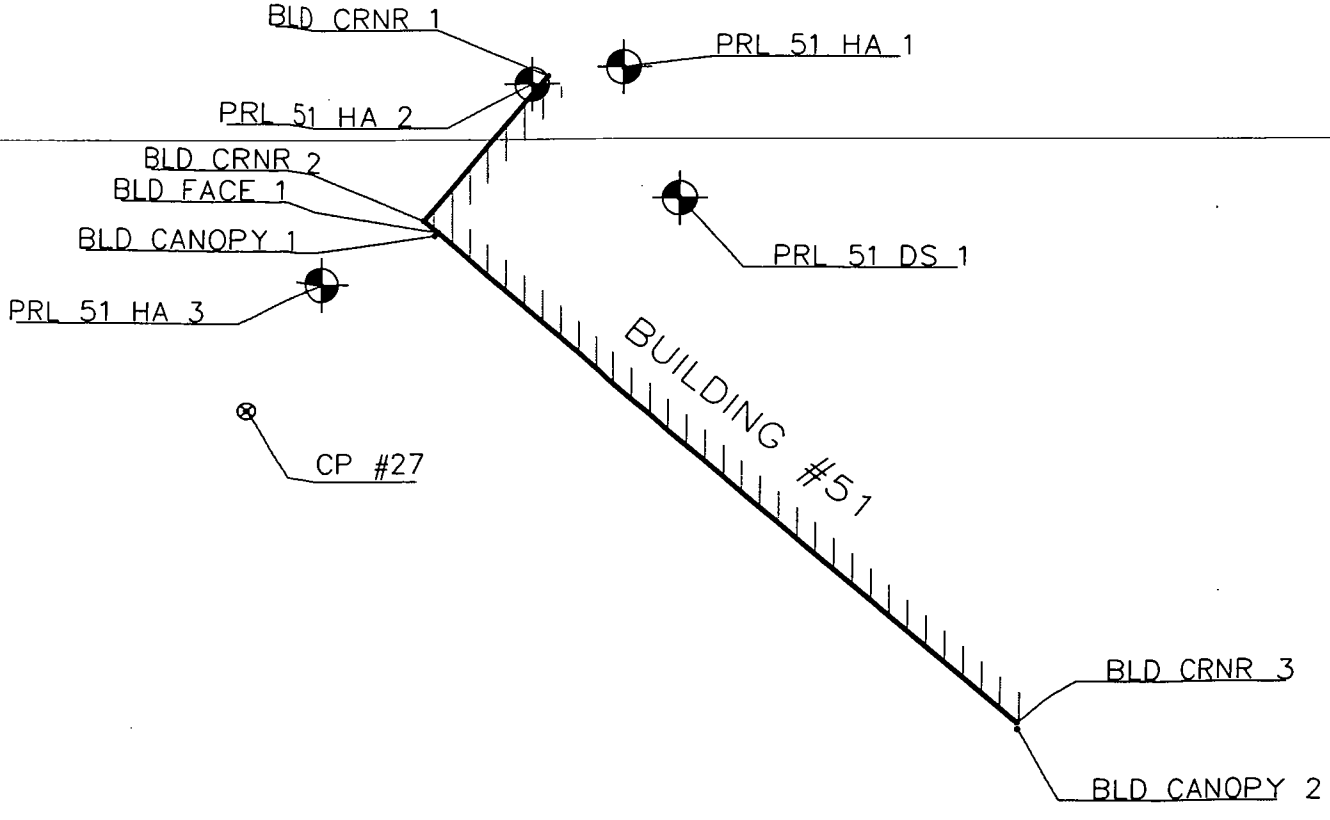
UJ = Indicates the compound or analyte was analyzed for but was not detected. The sample detection limit is an estimated value.

-- = Not Analyzed

SS = Soil Sample

ASTM = American Society of Testing and Materials

Appendix B
Land Surveying Data



PRL AND NOTABLE FEATURES LOCATIONS			
STATION	NORTHING	EASTING	ELEVATION
BLD CANOPY 1	2193945.50	6108093.89	
BLD CANOPY 2	2193842.73	6108213.50	
BLD FACE 1	2193946.20	6108094.63	
BLD CRNR 1	2193978.50	6108117.35	
BLD CRNR 2	2193948.66	6108091.75	
BLD CRNR 3	2193844.09	6108213.42	
CP #27	2193908.31	6108054.78	291.34
PRL 51 DS 1	2193953.20	6108144.72	295.67
PRL 51 HA 1	2193980.25	6108133.22	293.45
PRL 51 HA 2	2193976.83	6108114.06	293.66
PRL 51 HA 3	2193935.39	6108070.52	291.93

DCA CIVIL ENGINEERING GROUP
17625 Crenshaw Blvd., Ste. 300
Torrance, California 90504
Tel: (310) 327-0018
Fax: (310)327-0175
www.dcacivileng.com

POTENTIAL RELEASE LOCATION SKETCH

SCALE:	1"= 40'	DATE:	02-16-05
BY:	JCL	JOB NO.:	04-1058-2227.000-535

Attachment 2
Summary Report
PRL 310

Summary Report for PRL 310, Environmental Baseline Survey

Former Marine Corps Air Station, El Toro, California

March 2005

Prepared for:
Base Realignment and Closure
Program Management Office West
1230 Columbia Street, Suite 1100
San Diego, CA 92101

Prepared by:
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, HI 96813-3920

Prepared under:
Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0104

CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

BNI	Bechtel National, Inc.
COPC	chemical of potential concern
EPA	Environmental Protection Agency, United States
HI	hazard index
MCAS	Marine Corps Air Station
NFECSW SDIEGO	Southwest Division, Naval Facilities Engineering Command
PRG	preliminary remediation goal
PRL	potential release location
TPH	total petroleum hydrocarbons
TPH_d	TPH as diesel
TPH_g	TPH as gasoline
TPH_m	TPH as motor oil
VOC	volatile organic compound
VSI	visual site inspection

1. Background

Potential Release Location (PRL) 310 is associated with Building 310, located in the southwest quadrant of former Marine Corps Air Station (MCAS) El Toro, California (Figure 1). The building was listed as Paint and Oil Storage in the 1948, 1949, 1950, and 1954 station lists and as Storehouse in the 1958 list. The facility description was Line Maintenance Shelter in the 1973 list and Vehicle Maintenance Facility in the 1997 list, and this was the last known description. Figure 2 shows the plan of Building 310 and the surrounding area.

One location of concern is associated with this site. MSC ST7GN1 was a petroleum-stained area at Installation Restoration Program Site 7, Unit 5. Soil samples were collected in 2001. As a result of a site visit to various petroleum release sites conducted in October 2002, the Regional Water Quality Control Board concurred with no further action in a letter dated 20 February 2003.

1.1 Issues and Concerns

Following is the summary of the observations and conclusions of the visual site inspection (VSI) and records review conducted in support of the 2003 Environmental Baseline Survey (NFECSW SDIEGO 2003):

- A 5-foot-by-5-foot-by-5-foot pit shored on all sides with marsdon matting and bare soil on the bottom is located south of Building 310. A pipe terminates inside a square duct that extends to the pit. Based on the historical description of the building as paint and oil storage, and vehicle maintenance facility, investigation of the discharge pit is recommended.
- Several floor drains were identified inside the building during the 2002 VSI. No staining was evident near these floor drains or any other portion of the building. Additionally, no major cracks were observed in the building floor. Therefore, no sampling is recommended near the floor drains inside the building.

A sampling program was proposed to further investigate the issues identified and assess whether a release to the environment of hazardous substances or pollutants has occurred. A summary of soil sampling activities is presented in Section 2, and the results are presented in Section 3.

2. Sampling and Analysis Summary

Sampling was conducted for evaluation of PRL 310 in January 2005. The sample locations are shown on Figure 2 and a summary of sampling and analyses is provided in Table 1.

One soil sample was collected at location HA1 within the discharge pit at PRL 310. The sample was collected 1 foot below ground surface by hand auger and analyzed for volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), and metals (cadmium, chromium, cobalt, copper, lead, mercury, nickel, and zinc). The results for TPH were reported as TPH as gasoline (TPH_g), TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

3. Investigation Results

3.1 Analytical Results and Quality Assurance

The analytical results for the samples collected at PRL 310 along with the United States Environmental Protection Agency (EPA) Region 9 or California-Modified residential preliminary remediation goals (PRGs) are presented in Table 2 (EPA Region 9 2004). Appendix A presents the validated laboratory analytical data and Appendix B presents the land surveying data.

Some results were qualified as estimated in the data validation process. These qualifications do not affect the findings or conclusions of this report

3.2 RESULT EVALUATION AND RISK SCREENING

The main contributor to the TPH detection at HA1 is associated with motor oil and diesel oil. However, the concentration of TPH at HA1 is not indicative of a significant release. Furthermore, the detection is assessed to be representative of the maximum concentration in soil as the sample was collected within the discharge pit.

No PRGs exist for TPH or its subcategories (i.e., TPH_g, TPH_d, and TPH_m). VOCs with PRG values were not detected above laboratory reporting limits, and none of the metals (cadmium, chromium, cobalt, copper, lead, mercury, nickel and zinc) exceeded their respective residential PRGs (EPA Region 9 2004), although a few exceedances above the former MCAS El Toro background values (BNI 1996) were observed.

Risk screening was performed to evaluate risks associated with potential exposures to detected analytes in the soil at PRL 310. The methodology for risk screening is presented in Section 3.3 of the Summary Report and results are presented in Table 3.

The cumulative maximum carcinogenic risk due to potential exposure to maximum detected concentrations of chemicals of potential concern (COPCs) (detected analytes) at PRL 310 is 8.8E-08, which is below the EPA point of departure risk level of 10^{-6}. The cumulative maximum noncancer hazard associated with potential exposure to maximum detected concentrations of COPCs is expressed as hazard index (HI) of 0.483, which is below the target HI of 1.

4. Conclusions and Recommendations

The primary objective of investigations conducted at PRL 310 was to assess whether a release of hazardous substances or pollutants into the environment has occurred. A review of available records, VSIs, and soil sampling indicate that no significant release of hazardous substances or pollutants has occurred at PRL 310. The concentration of TPH in the soil sample does not indicate that there has been a significant release of hydrocarbons to the soil via the discharge pit. VOCs were not detected above laboratory reporting limits. The detected concentrations of all chemicals were less than their respective residential PRGs and are not indicative of a release. The cancer risk at PRL 310 is less than the EPA point of departure value of 10^{-6}. Additionally, the noncancer risk at this PRL is less than the target HI of 1. Therefore, no further investigation is recommended for PRL 310.

5. References

Bechtel National, Inc. (BNI). 1996. *Final Technical Memorandum, Background and Reference Levels, Remedial Investigations, Marine Corps Air Station El Toro, California.* San Diego, CA: NAVFAC EFD SOUTHWEST.

Environmental Protection Agency, United States (EPA). 2004. *SW-846 On-Line, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm. Office of Solid Waste.

Environmental Protection Agency, United States, Region 9 (EPA Region 9). 2004. *EPA Region 9 PRGs* [Preliminary Remediation Goals] *Tables.* San Francisco, CA. October.

Southwest Division, Naval Facilities Engineering Command (NFECSW SDIEGO). 2003. *Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* San Diego, CA. September.

Tables

Table 1: Sampling and Analyses Summary – PRL 310

Analytical Group and Method[a]	Sample Location	HA1
	EPA ID	LJ365
	Sample Depth (ft bgs)	1
	Sampling Technique	Hand Auger
Cadmium 6010B		X
Chromium 6010B		X
Cobalt 6010B		X
Copper 6010B		X
Lead 6010B		X
Mercury 7471A		X
Nickel 6010B		X
Zinc 6010B		X
VOCs 8260B		X
TPH[b] 8015B		X

Notes:
ft bgs = feet below ground surface
X = analysis was performed for the specified analyte
[a] Analysis was in general accordance with the listed methods provided in EPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
[b] Analytical results for TPH were reported as TPH as gasoline (TPH_g) TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

Table 2: Analytical Results Summary - PRL 310

Analyte	MCAS El Toro Background Concentrations (95th Quantile)[a]	Residential Soil PRG[b]	Sample Location	PRL 310- HA1
			Sample Depth	1 feet bgs
			Sample Name	LJ365
Total Petroleum Hydrocarbons (mg/kg)				
TPH as Gasoline	--	--		0.01J
TPH as Diesel	--	--		59
TPH as Motor Oil	--	--		390
Metals (mg/kg)				
Cadmium	2.35	37		2.5
Chromium	26.9	211		17
Cobalt	6.98	903		5.1
Copper	10.5	3129		16.1
Lead[c]	15.1	150		58.6
Mercury	0.22	23		0.12J
Nickel	15.3	1564		8.7
Zinc	77.9	23463		119

Notes

-- = Value does not exist

J = Indicates an estimated value

mg/kg = milligram per kilogram

[a] = Source: BNI 1996

[b] = Analytical results were compared to EPA Region 9 PRGs (2004), with the exception of lead (see note c).

[c] = Analytical results for lead were compared to Cal-Modified PRG (2004) since it is significantly more protective than corresponding EPA Region 9 PRGs.

Table 3: Risk Screening Results - PRL 310

Chemical of Potential Concern	MCAS El Toro Background Concentrations (95th Quantile)[a]	Maximum EPC (mg/kg)	Carcinogenic PRG[b] (mg/kg)	Noncarcinogenic PRG[b] (mg/kg)	Risk Corresponding to Maximum EPC			
					Carcinogenic		Noncarcinogenic	
					Excess Cancer Risk[c]	Percent Contribution to Cancer Risk[d]	Hi[e]	Percent Contribution to Noncancer Risk[d]
Metals								
Cadmium	2.35	2.5	1.4E+03	3.7E+01	1.8E-09	2.0%	6.8E-02	14.0%
Chromium	26.9	17	2.1E+02	--	8.1E-08	91.6%	--	--
Cobalt	6.98	5.1	9.0E+02	1.4E+03	5.6E-09	6.4%	3.7E-03	0.8%
Copper	10.5	16.1	--	3.1E+03	--	--	5.1E-03	1.1%
Lead[h]	15.1	58.6	--	1.5E+02	--	--	3.9E-01	80.9%
Mercury	0.22	0.12	--	2.3E+01	--	--	5.1E-03	1.1%
Nickel	15.3	8.7	--	1.6E+03	--	--	5.6E-03	1.2%
Zinc	77.9	119	--	2.3E+04	--	--	5.1E-03	1.1%
			Cumulative Maximum Risk		**8.8E-08**		**4.8E-01**	

Notes:

EPC = exposure point concentration

[a] Source: BNI 1996

[b] US EPA Region 9 PRGs (2004).

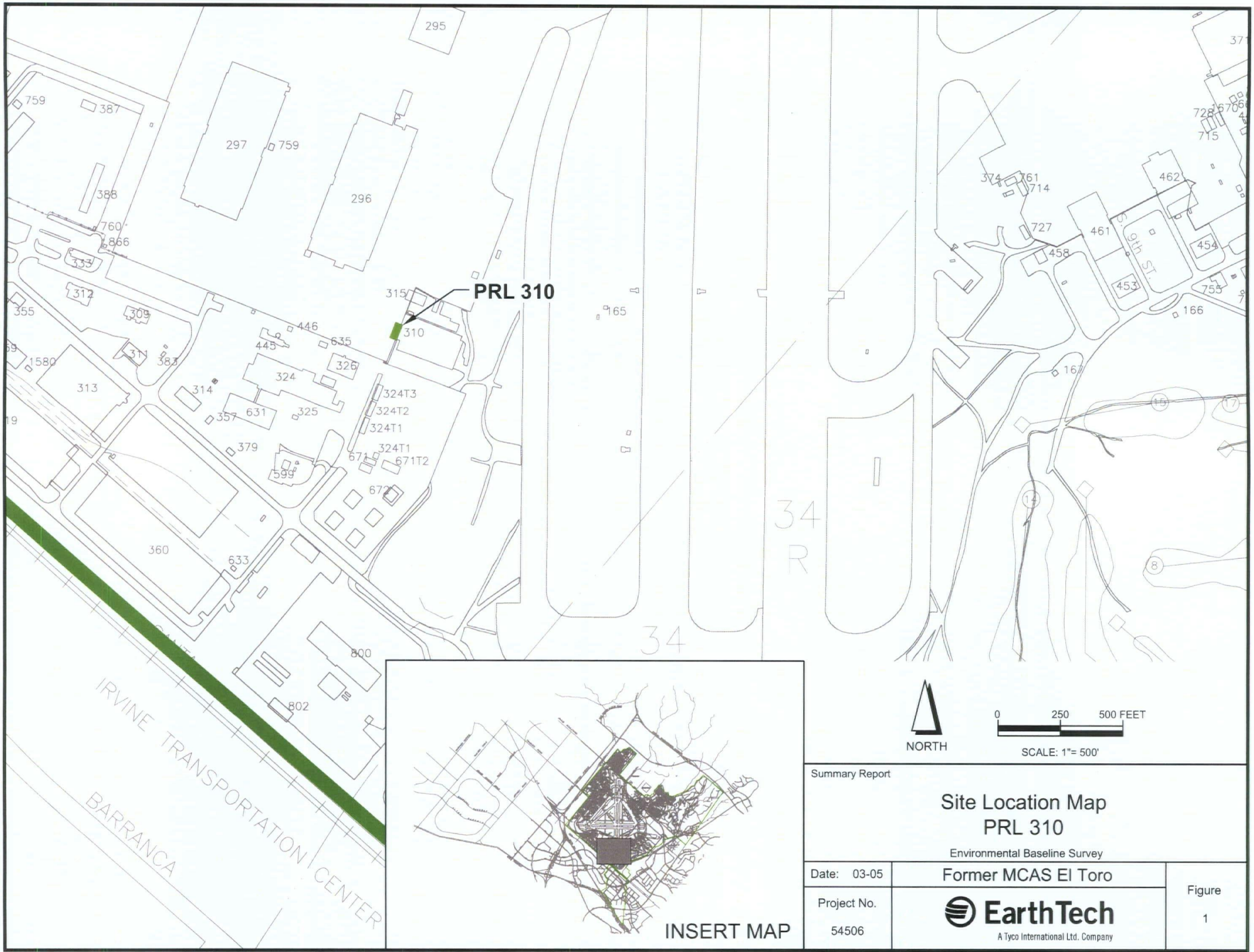
[c] Excess cancer risk = 1E-06 x (Maximum EPC/Carcinogenic PRG)

[d] With respect to cumulative excess cancer risk or hazard index (including metals with background)

[e] HI = Maximum EPC / Noncarcinogenic PRG

[f] Cal-Modified Carcinogenic PRG (2004) was used for lead for excess cancer risk calculation since it is significantly more protective than corresponding EPA Region 9 PRG.

Figures



Summary Report

Site Location Map
PRL 310

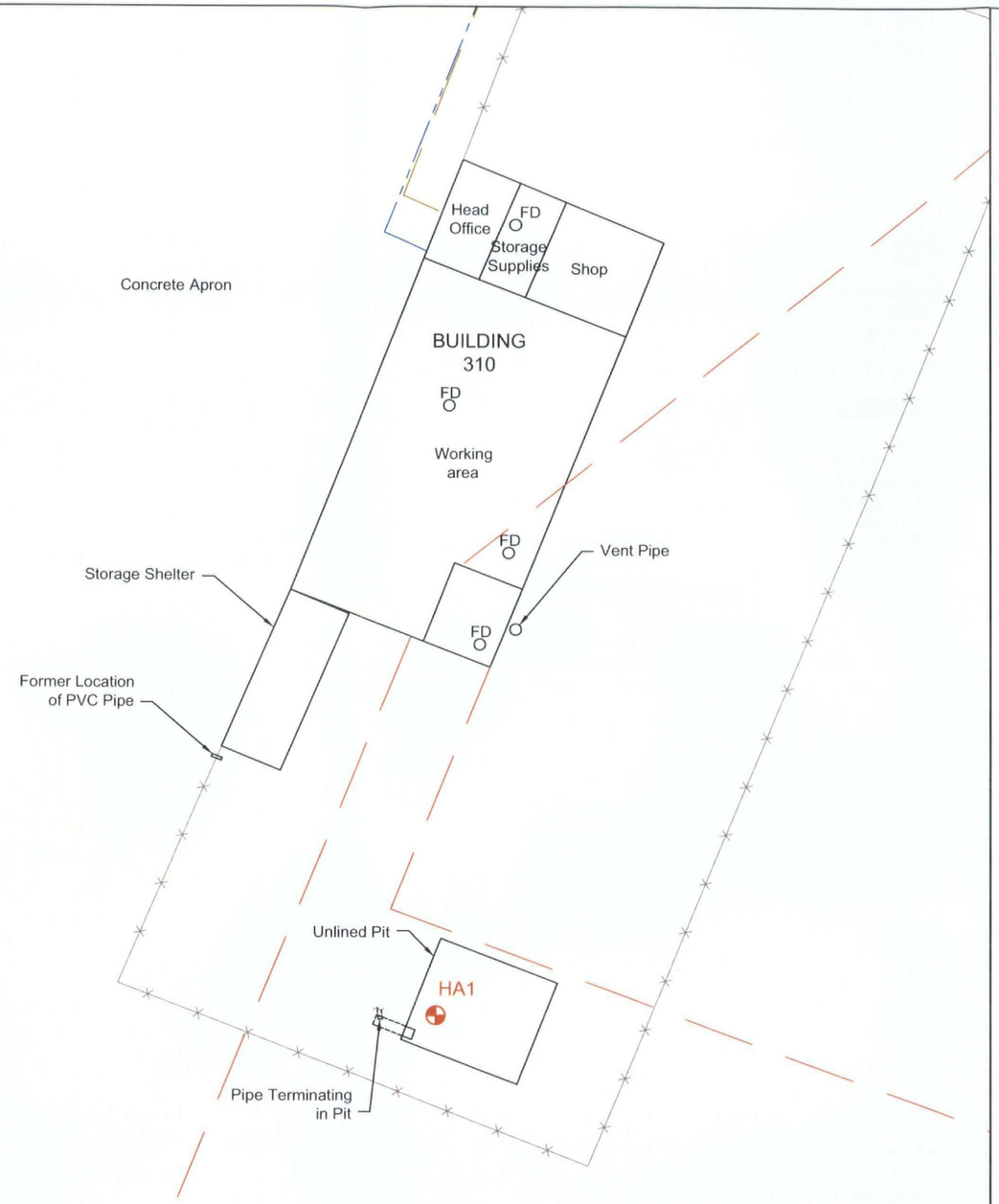
Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 1
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

File: L:\work\54506\work\EBS\CAD\PA\Non-transferrable_PRLs\SummaryReports\Group II\Final\SR PRL 310.dwg Time: Mar 31, 2005 - 9:40am

Unlined Pit Shored with Marsdon Matting
South of Building 310

Pipe Terminating into Pit



LEGEND:

- Sanitary Sewer
- Water Line
- Electrical Line
- FD Floor Drain
- HA1 Proposed Soil Sample Location

NORTH
0 10' 20 FEET
SCALE: 1"= 20'

Features and Interior Layout are Approximate and May Not be to Scale

Summary Report

Site Plan
PRL 310

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure
Project No. 54506	EarthTech, A Tyco International Ltd. Company	2

File: L:\work\54506\work\EBS\CAD\PA\Non-transferable_PRLs\SummaryReports\Group II\Final\SR PRL 310.dwg Time: Mar 31, 2005 - 9:40am

Appendix A
Validated Laboratory Analytical Data Reports

Validated Analytical Data for PRL 310

		Sample ID:	LJ365
		Location ID:	PRL310-HA1
		Sample Type:	SS
		Sample Depth:	1
		Sample Date:	20-Jan-05
Parameter	Units	Analytical Method[1]	
Total Petroleum Hydrocarbons			
TPH as Diesel	mg/kg	8015B DRO	59
TPH as Motor Oil	mg/kg	8015B DRO	390
TPH as Gasoline	mg/kg	8015B GRO	8.9 U
Others			
Moisture	%	ASTM D 2216	4
Metals			
Mercury	mg/kg	7471A	0.12
Lead	mg/kg	6010B	58.6
Cadmium	mg/kg	6010B	2.5
Chromium	mg/kg	6010B	17
Cobalt	mg/kg	6010B	5.1
Copper	mg/kg	6010B	16.1
Nickel	mg/kg	6010B	8.7
Zinc	mg/kg	6010B	119
Volatile Organic Compounds			
1,1,1-Trichloroethane	ug/kg	8260B	4.6 U
1,1,2,2-Tetrachloroethane	ug/kg	8260B	4.6 UJ
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	8260B	4.6 U
1,1,2-Trichloroethane	ug/kg	8260B	4.6 U
1,1-Dichloroethane	ug/kg	8260B	4.6 U
1,1-Dichloroethene	ug/kg	8260B	4.6 U
1,2-Dichloroethane	ug/kg	8260B	4.6 U
1,2-Dichloropropane	ug/kg	8260B	4.6 U
1,2-Dichlorotetrafluoroethane	ug/kg	8260B	4.6 U
2-Butanone (MEK)	ug/kg	8260B	92 UJ
2-Hexanone	ug/kg	8260B	46 U
4-Methyl-2-Pentanone	ug/kg	8260B	46 U
Acetone	ug/kg	8260B	92 UJ
Benzene	ug/kg	8260B	4.6 U
Bromodichloromethane	ug/kg	8260B	4.6 U
Bromoform	ug/kg	8260B	4.6 U
Bromomethane	ug/kg	8260B	4.6 UJ
Carbon Disulfide	ug/kg	8260B	4.6 U
Carbon Tetrachloride	ug/kg	8260B	4.6 U
Chlorobenzene	ug/kg	8260B	4.6 U
Chlorodibromomethane	ug/kg	8260B	4.6 U
Chloroethane	ug/kg	8260B	4.6 U
Chloroform	ug/kg	8260B	4.6 U
Chloromethane	ug/kg	8260B	4.6 U
cis-1,2-Dichloroethene	ug/kg	8260B	4.6 U
cis-1,3-Dichloropropene	ug/kg	8260B	4.6 U
Dichlorodifluoromethane (F12)	ug/kg	8260B	4.6 U
Diisopropyl Ether	ug/kg	8260B	4.6 U

Validated Analytical Data for PRL 310

		Sample ID:	LJ365
		Location ID:	PRL310-HA1
		Sample Type:	SS
		Sample Depth:	1
		Sample Date:	20-Jan-05
Parameter	Units	Analytical Method[1]	
Ethyl-tert-butyl ether (ETBE)	ug/kg	8260B	4.6 U
Methyl tert-butyl ether	ug/kg	8260B	4.6 U
Methylene Chloride	ug/kg	8260B	4.6 U
Styrene	ug/kg	8260B	4.6 U
tert-Amyl methyl ether (TAME)	ug/kg	8260B	4.6 U
tertiary-Butyl alcohol (TBA)	ug/kg	8260B	18 UJ
Tetrachloroethene	ug/kg	8260B	4.6 U
Toluene	ug/kg	8260B	4.6 U
Total xylenes	ug/kg	8260B	14 U
trans-1,2-Dichloroethene	ug/kg	8260B	4.6 U
trans-1,3-Dichloropropene	ug/kg	8260B	4.6 U
Trichloroethene	ug/kg	8260B	4.6 U
Trichlorofluoromethane	ug/kg	8260B	4.6 U
Vinyl chloride	ug/kg	8260B	4.6 U

Notes:

[1] = Environmental Protection Agency Method unless otherwise noted.

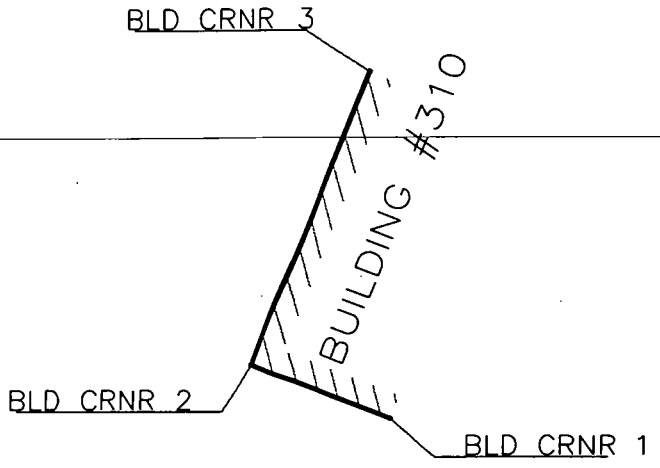
U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

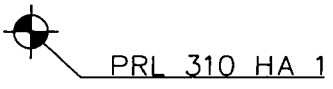
UJ = Indicates the compound or analyte was analyzed for but was not detected. The sample detection limit is an estimated value.

SS = Soil Sample

ASTM = American Society of Testing and Materials

Appendix B
Land Surveying Data





PRL AND NOTABLE FEATURES LOCATIONS			
STATION	NORTHING	EASTING	ELEVATION
BLD CRNR 1	2187990.60	6110429.66	
BLD CRNR 2	2188001.69	6110401.27	
BLD CRNR 3	2188062.39	6110424.87	
CP #1	2187937.99	6110359.34	288.89
PRL 310 HA 1	2187916.13	6110423.11	284.62

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POTENTIAL RELEASE LOCATION SKETCH

SCALE: 1"= 40'	DATE: 02-16-05
BY: JCL	JOB NO.: 04-1058-2227.000-535

Attachment 3
Summary Report
PRL 370

Summary Report for PRL 370, Environmental Baseline Survey

Former Marine Corps Air Station, El Toro, California

March 2005

Prepared for:
Base Realignment and Closure
Program Management Office West
1230 Columbia Street, Suite 1100
San Diego, CA 92101

Prepared by:
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, HI 96813-3920

Prepared under:
Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0104

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APPENDICES

ACRONYMS AND ABBREVIATIONS

BNI	Bechtel National, Inc.
COPC	chemical of potential concern
EBS	environmental baseline survey
EPA	Environmental Protection Agency, United States
HI	hazard index
MCAS	Marine Corps Air Station
NFECSW SDIEGO	Southwest Division, Naval Facilities Engineering Command
PCB	polychlorinated biphenyl
PRG	preliminary remediation goal
PRL	potential release location
TAA	temporary accumulation area
TPH	total petroleum hydrocarbons
TPH_d	TPH as diesel
TPH_g	TPH as gasoline
TPH_m	TPH as motor oil
VSI	visual site inspection

1. Background

Potential Release Location (PRL) 370 is associated with Building 370, located in the southwest quadrant of former Marine Corps Air Station (MCAS) El Toro, California (Figure 1). The building was listed as Metal Trades in the 1954 station list and as Metal Trades Shop in the 1958 list. The facility description was Public Works Shop in the 1973 list and as Public Works Paint/Carpentry Metal Trades in the 1997 list. At the time of the visual site inspection (VSI) conducted for the 2003 environmental baseline survey (EBS) (NFECSW SDIEGO 2003) the building was listed as Servmart. Figure 2 shows the plan of Building 370 and the surrounding area.

Two locations of concern were associated with this site. PCB T55 was a pad-mounted transformer containing polychlorinated biphenyls (PCB) that was replaced by a non-PCB transformer. The 1994 field survey indicated no evidence of release. No PCB releases were identified through the records searched or through the VSIs conducted for the 2003 EBS. TAA 370 was a less-than-90-day temporary accumulation area (TAA) for hazardous material storage. No evidence of release was identified during numerous site visits at TAA 370; no further action for TAA 370 was recommended and regulatory agency concurrence is pending.

1.1 Issues and Concerns

Following is the summary of the observations and conclusions of the VSI and records review conducted in 2002 and 2004:

- Staining was observed at various locations in the building including the exterior Metal Shop and on the wooden-block floor of the Machine and Sheet Metal Shop during the 2002 VSI and subsequent visits conducted in support of the EBS. Although likely, it is not known whether a concrete slab exists beneath the wooden floor. The stains were assessed to be superficial and located on intact concrete or wooden flooring, and no release to the environment was anticipated.
- Staining was observed next to a floor drain located in the northwest corner of the Sheet Metal Shop. Further investigation was recommended to assess if releases of hazardous substances or pollutants has occurred via the floor drain.

A sampling program was proposed to further investigate the issues identified and assess whether a release to the environment of hazardous substances or pollutants has occurred. A summary of soil sampling activities is presented in Section 2, and the results are presented in Section 3.

2. Sampling and Analysis Summary

Sampling was conducted for evaluation of PRL 370 in January 2005. The sample location is shown on Figure 2 and a summary of sampling and analyses is provided in Table 1.

One soil sample was collected at location HA1, in the Sheet Metal Shop near the floor drain. The sample was collected 2.0-2.5 feet below ground surface using a hand auger and analyzed for total petroleum hydrocarbons (TPH) and metals (cadmium, chromium, copper, lead, mercury, nickel, and zinc). The results for TPH were reported as TPH as gasoline (TPH_g), TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

3. Investigation Results

3.1 Analytical Results and Quality Assurance

The analytical results for the samples collected at PRL 370 along with the United States Environmental Protection Agency (EPA) Region 9 or California-Modified residential preliminary remediation goals (PRGs) are presented in Table 2 (EPA Region 9 2004). Appendix A presents the validated laboratory analytical data and Appendix B presents the land surveying data.

Some results were qualified as estimated in the data validation process. These qualifications do not affect the findings or conclusions of this report.

3.2 Result Evaluation and Risk Screening

None of the metals exceeded their respective residential PRGs or MCAS El Toro background values (BNI 1996). TPH was not detected above the laboratory reporting limits.

Risk screening was performed to evaluate risks associated with potential exposures to detected analytes in the soil at PRL 370. The methodology for risk screening is presented in Section 3.3 of the Summary Report and results are presented in Table 3.

The cumulative maximum carcinogenic risk due to potential exposure to maximum detected concentrations of chemicals of potential concern (COPCs) (detected analytes) at PRL 370 is 9.2E-08, which is below the EPA point of departure risk level of 10^{-6}. The cumulative maximum noncancer hazard associated with potential exposure to maximum detected concentrations of COPCs is expressed as hazard index (HI) of 0.083, which is below the target HI of 1.

4. Conclusions and Recommendations

The primary objective of investigations conducted at PRL 370 was to assess whether a release of hazardous substances or pollutants into the environment has occurred. A review of available records, VSIs, and soil sampling indicate that no significant release of hazardous substances or pollutants has occurred at PRL 370. This conclusion is supported by the observation that detected concentrations of all chemicals were less than their respective residential PRGs and MCAS El Toro background values, and are not indicative of release. The cancer risk at PRL 370 is less than the EPA point of departure value of 10^{-6}. Additionally, the noncancer risk at this PRL is less than the target HI of 1. Therefore, no further investigation is recommended for PRL 370.

5. References

Bechtel National, Inc. (BNI). 1996. *Final Technical Memorandum, Background and Reference Levels, Remedial Investigations, Marine Corps Air Station El Toro, California.* San Diego, CA: NAVFAC EFD SOTHWEST.

Drawing: Area 27, Sanitary Sewers, US Marine Corps Air Station, El Toro, CA, Public Works Department. DWG# 6314057.

Drawing: MCAS El Toro, Repairs to Buildings 390, 370 and 317. Building 370 Electrical Plan, sheet 22 of 22. Dated: 1-9-90.

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Southwest Division, Naval Facilities Engineering Command (NFECSW SDIEGO). 2003. *Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* San Diego, CA. September.

Tables

Table 1: Sampling and Analyses Summary – PRL 370

Analytical Group and Method[a]	Sample Location	HA1
	EPA ID	LJ350
	Sample Depth (ft bgs)	2-2.5
	Sampling Technique	Hand Auger
Cadmium 6010B		X
Chromium 6010B		X
Copper 6010B		X
Lead 6010B		X
Mercury 7471A		X
Nickel 6010B		X
Zinc 6010B		X
TPH[b] 8015B		X

Notes:
ft bgs = feet below ground surface
X = analysis was performed for the specified analyte
[a] Analysis was in general accordance with the listed methods provided in EPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
[b]= Analytical results for TPH were reported as TPH as gasoline (TPH_g) TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

Table 2: Analytical Results Summary - PRL 370

Analyte	MCAS El Toro Background Concentrations (95th Quantile)[a]	Residential Soil PRG[b]	Sample Location	PRL370-HA01
			Sample Depth	2-2.5 ft bgs
			Sample Name	LJ350
Metals (mg/kg)				
Cadmium	2.35	37		0.19
Chromium	26.9	211		19.3
Copper	10.5	3,129		5.2
Lead[c]	15.1	150		10.3
Mercury	0.22	23.5		0.044 J
Nickel	15.3	1,564		7.1
Zinc	77.9	23,463		24.3

Notes

bgs = *below ground surface*

J = Indicates an estimated value

mg/kg =milligram per kilogram

[a] Source: BNI 1996

[b] *Analytical results were compared to EPA Region 9 PRGs (2004), with the exception of lead (see note c).*

[c] Analytical results for lead were compared to Cal-Modified PRG (2004) since it is significantly more protective than corresponding EPA Region 9 PRGs.

Table 3: Risk Screening Results - PRL 370

Chemical of Potential Concern	MCAS El Toro Background Concentrations (95th Quantile)[a]	Maximum EPC (mg/kg)	Carcinogenic PRG[b] (mg/kg)	Noncarcinogenic PRG[b] (mg/kg)	Risk Corresponding to Maximum EPC			
					Carcinogenic		Noncarcinogenic	
					Excess Cancer Risk[c]	Percent Contribution to Cancer Risk[d]	Hi[e]	Percent Contribution to Noncancer Risk[d]
Metals (mg/kg)								
Cadmium	2.35	0.19	1.4E+03	3.7E+01	1.4E-10	0.1%	5.1E-03	6.2%
Chromium	26.9	19.3	2.1E+02	--	9.2E-08	99.9%	--	--
Copper	10.5	5.2	--	3.1E+03		--	1.7E-03	2.0%
Lead[h]	15.1	10.3	--	1.5E+02	--	--	6.9E-02	82.8%
Mercury	0.22	0.044	--	2.3E+01	--	--	1.9E-03	2.3%
Nickel	15.3	7.1	--	1.6E+03	--	--	4.5E-03	5.5%
Zinc	77.9	24.3	--	2.3E+04	--	--	1.0E-03	1.2%
			Cumulative Maximum Risk		**9.2E-08**		**8.3E-02**	

Notes:

EPC = exposure point concentration

[a] Source: BNI 1996

[b] U.S. EPA Region 9 PRGs (2004).

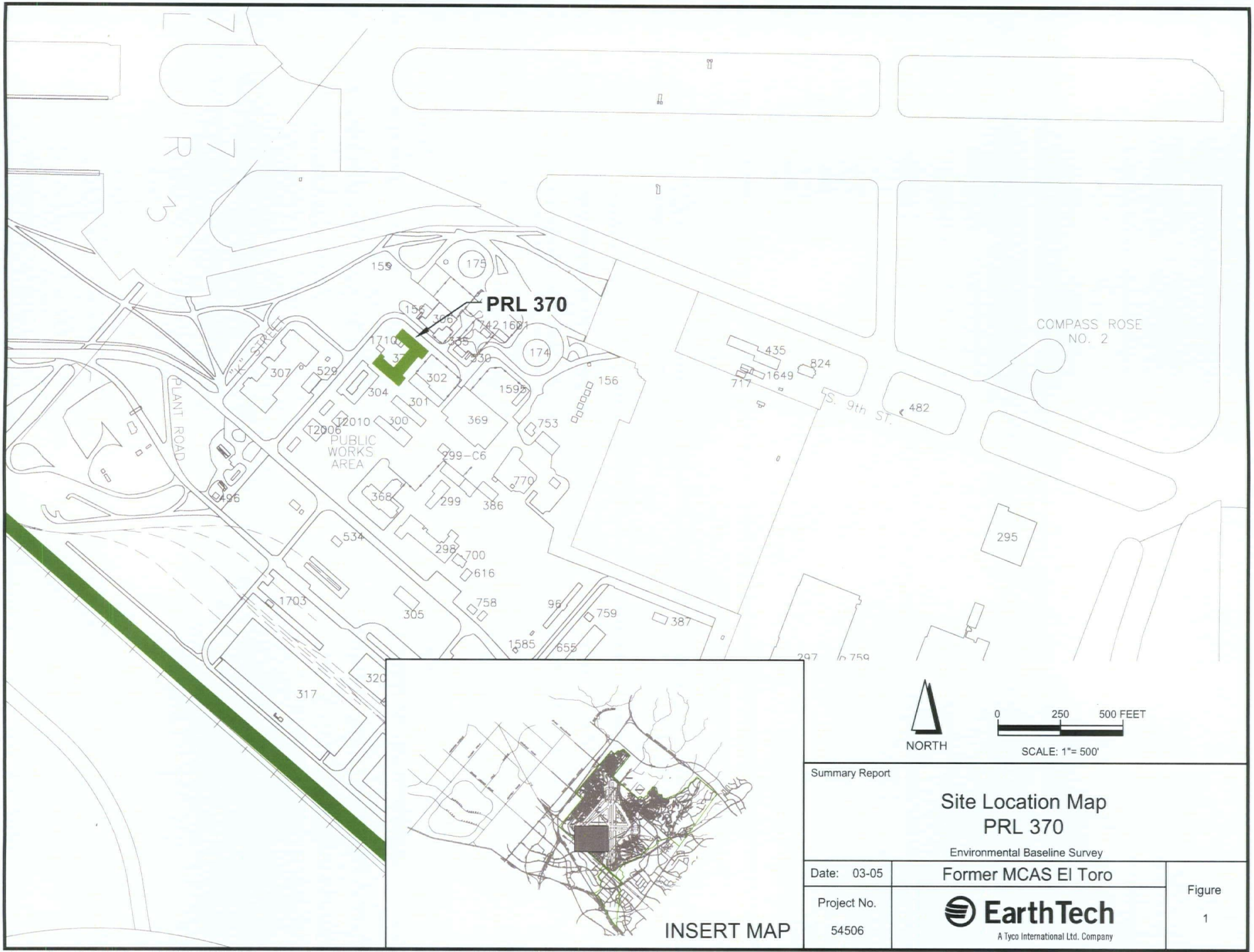
[c] Excess cancer risk = 1E-06 x (Maximum EPC/Carcinogenic PRG).

[d] With respect to cumulative excess cancer risk or hazard index (including metals with background).

[e] HI = Maximum EPC / Noncarcinogenic PRG.

[f] Cal-Modified Carcinogenic PRG (2004) was used for lead for excess cancer risk calculation since it is significantly more protective than corresponding EPA Region 9 PRG.

Figures



Summary Report

Site Location Map
PRL 370

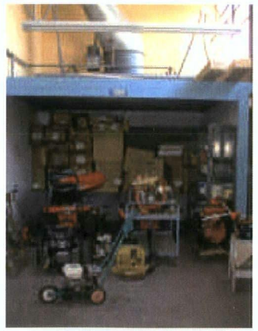
Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 1
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

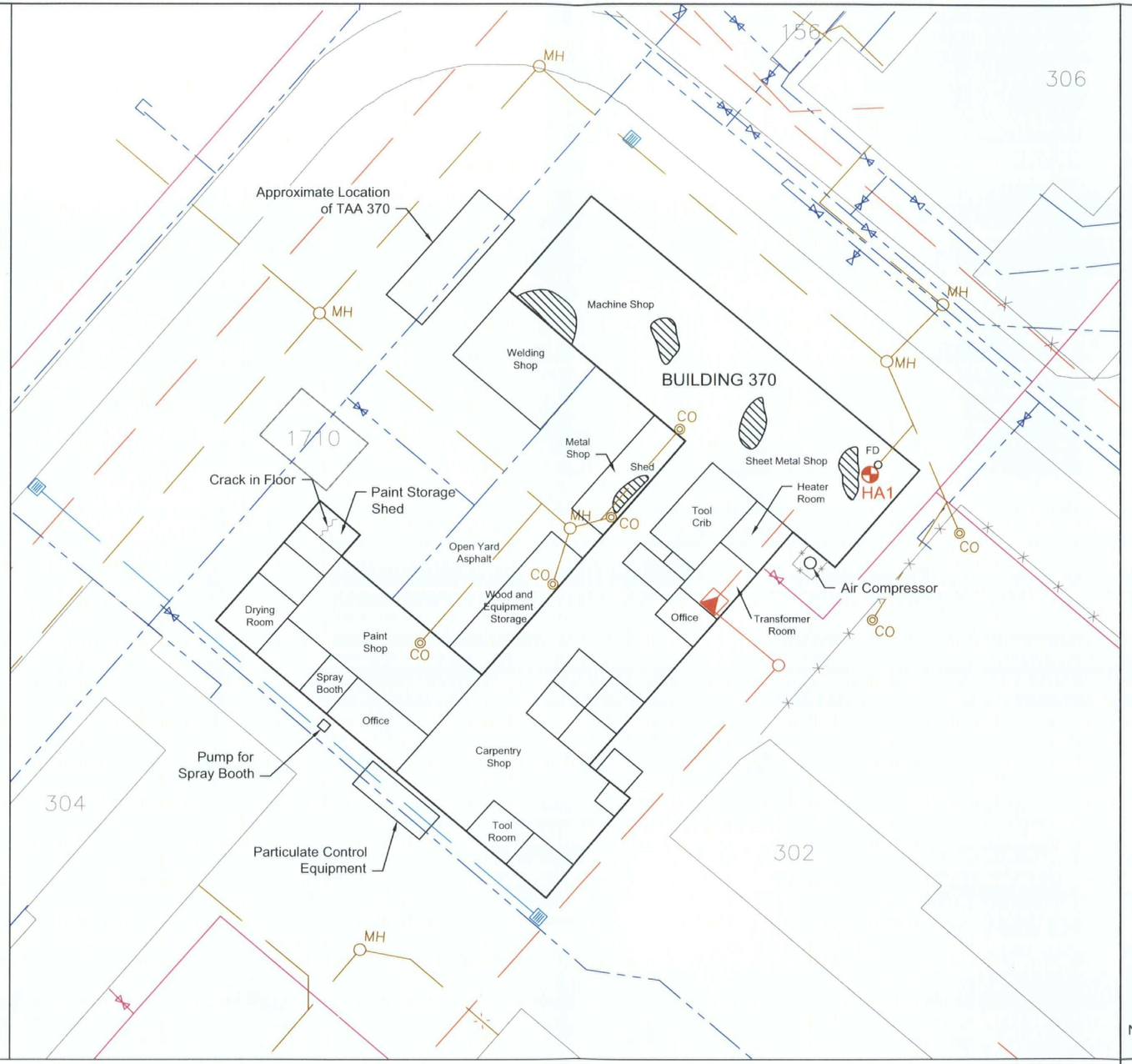
File: L:\work\54506\work\EBS\CAD\PA\Non-transferrable_PRLs\SummaryReports\Group II\Final\SR PRL 370.dwg Time: Mar 31, 2005 - 9:43am

Metal Shop Flooring with POL Stains

Sheet Metal Shop Interior
(Facing Northwest)



Spray Booth
(Facing Southeast)



LEGEND:

- Sanitary Sewer
- Water Line
- Natural Gas Line
- Electrical Line
- FD — Floor Drain
- HA1 — Proposed Soil Sample Location
- CO — Clean Out
- MH — Manhole
- Catch Basin
- Transformer
- Water Valve
- Stain

NORTH

0 20' 40 FEET

SCALE: 1"= 20'

Note: Features and Interior Layout are Approximate and May Not be to Scale

Summary Report

Site Plan
PRL 370

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 2
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

File: L:\work\54506\work\EBS\CAD\PA\Non-transferrable_PRLs\SummaryReports\Group II\Final\SR PRL 370.dwg Time: Mar 31, 2005 - 9:43am

Appendix A
Validated Laboratory Analytical Data Reports

Validated Analytical Data for PRL 370

		Sample ID:	LJ350
		Location ID:	PRL370-HA1
		Sample Type:	SS
		Sample Depth:	2-2.5
		Sample Date:	05-Jan-05
Parameter	Units	Analytical Method[1]	
Metals			
Cadmium	mg/kg	6010B	0.19
Chromium	mg/kg	6010B	19.3
Copper	mg/kg	6010B	5.2
Lead	mg/kg	6010B	10.3
Mercury	mg/kg	7470A	0.044 J
Nickel	mg/kg	6010B	7.1
Zinc	mg/kg	6010B	24.3
Total Petroleum Hydrocarbons			
TPH as Diesel Fuel	mg/kg	8015B DRO	11 U
TPH as Motor Oil	mg/kg	8015B DRO	11 U
TPH as Gasoline	mg/kg	8015B GRO	9.2 U
Others			
Moisture	%	ASTM D 2216	6.2

Notes:

[1] = Environmental Protection Agency Method unless otherwise noted.

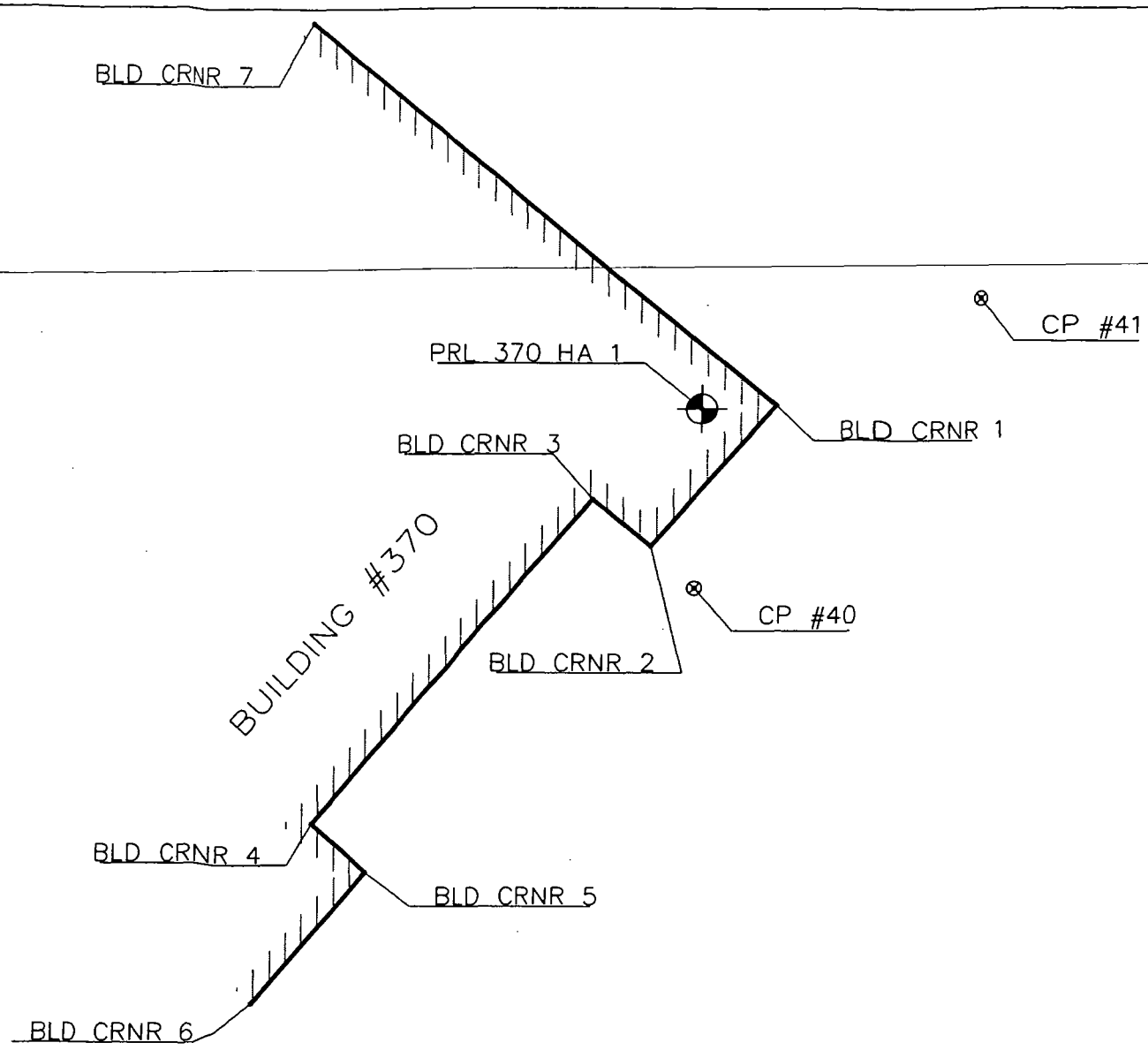
U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

J = Indicates an estimated value

SS = Soil Sample

ASTM = American Society of Testing and Materials

Appendix B
Land Surveying Data



PRL AND NOTABLE FEATURES LOCATIONS			
STATION	NORTHING	EASTING	ELEVATION
BLD CRNR 1	2189979.86	6108255.44	
BLD CRNR 2	2189946.53	6108227.52	
BLD CRNR 3	2189957.64	6108214.31	
BLD CRNR 4	2189881.00	6108148.57	
BLD CRNR 5	2189869.54	6108161.32	
BLD CRNR 6	2189838.45	6108134.58	
BLD CRNR 7	2190069.52	6108148.53	
CP #40	2189936.65	6108237.26	270.46
CP #41	2190004.98	6108300.53	270.72
PRL 370 HA 1	2189978.85	6108238.74	270.65

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POTENTIAL RELEASE LOCATION SKETCH

SCALE:	1"= 40'	DATE:	02-16-05
BY:	JCL	JOB NO.:	04-1058-2227.000-535

Attachment 4
Summary Report
PRL 445

Summary Report for PRL 445, Environmental Baseline Survey

Former Marine Corps Air Station, El Toro, California

March 2005

Prepared for:
Base Realignment and Closure
Program Management Office West
1230 Columbia Street, Suite 1100
San Diego, CA 92101

Prepared by:
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, HI 96813-3920

Prepared under:
Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0104

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ACRONYMS AND ABBREVIATIONS

EBS	environmental baseline survey
EPA	Environmental Protection Agency, United States
HI	hazard index
MCAS	Marine Corps Air Station
NFECSW SDIEGO	Southwest Division, Naval Facilities Engineering Command
OCHCA	Orange County Health Care Agency
OWS	oil/water separator
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PRG	preliminary remediation goal
PRL	potential release location
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
TPH	total petroleum hydrocarbons
TPH_d	TPH as diesel
TPH_g	TPH as gasoline
TPH_m	TPH as motor oil
UST	underground storage tank
VOC	volatile organic compound
VSI	visual site inspection

1. Background

Potential Release Location (PRL) 445 is associated with Building 445, located in the southwest quadrant of former Marine Corps Air Station (MCAS) El Toro, California (Figure 1). The building description was listed as Engine Test Cell in the 1973 list and Hazardous/Flammable Storehouse in the 1997 list. At the time of the visual site inspection (VSI) conducted for the 2003 environmental baseline survey (EBS) (NFECSW SDIEGO 2003) the building was listed as Old Test Cell, Hazardous/Flammable Storehouse. Figure 2 shows the plan of Building 445 and the surrounding area.

Five locations of concern were associated with this site. OWS 445 was an oil/water separator (OWS) of unknown size and was removed in 1997. No contamination was identified at the site and the site was closed by Orange County Health Care Agency (OCHCA) in a letter dated 24 October 1997. PCB T-68 was a transformer containing polychlorinated biphenyls (PCBs) that was replaced by a non-PCB transformer. The 1994 field survey indicated no evidence of release. No PCB releases were identified through the records searched or through the VSIs conducted for the 2003 EBS. Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) 128 was a storage area for which Department of Toxic Substances Control concurrence of no further action was obtained in a letter dated 23 July 1996. Underground storage tank (UST) 445A and UST 445B were 10,000-gallon, underground fuel and JP-5 storage tanks, respectively, that were removed on 8 May 1997; and the sites were closed by OCHCA in a letter dated 24 October 1997.

1.1 Issues and Concerns

Following is the summary of the observations and conclusions of the VSI and records review conducted in support of the 2003 EBS (NFECSW SDIEGO 2003):

- Release of hazardous substances or pollutants may have occurred through the floor drains identified in the Engine Room, Spray Chamber and Exhaust Stack areas during operation of the building. All the floor drains were observed to be filled in with concrete during the VSI. No records of assessment or investigation of the floor drains could be found. Further evaluation was recommended.

A sampling program was proposed to further investigate the issues identified and assess whether a release to the environment of hazardous substances or pollutants has occurred. A summary of soil sampling activities is presented in Section 2, and the results are presented in Section 3.

2. Sampling and Analysis Summary

Sampling was conducted for evaluation of PRL 445 in January 2005. The sample locations are shown on Figure 2 and a summary of sampling and analyses is provided in Table 1.

Two soil samples were collected at locations HA1 and HA2 in the Engine Room and Exhaust Stack. The samples were collected 3.5-4.0 feet below the ground surface, and analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH). The results for TPH were reported as TPH as gasoline (TPH_g), TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

3. Investigation Results

3.1 Analytical Results and Quality Assurance

The analytical results for the samples collected at PRL 445 along with the United States Environmental Protection Agency (EPA) Region 9 or California-Modified residential preliminary remediation goals (PRGs) are presented in Table 2 (EPA Region 9 2004). Appendix A presents the validated laboratory analytical data and Appendix B presents the land surveying data.

Some results were qualified as estimated in the data validation process. These qualifications do not affect the findings or conclusions of this report.

3.2 Result Evaluation and Risk Screening

TPH was detected as TPH_m in the soil samples from locations HA1 and HA2. However, the concentrations of TPH at HA1 and HA2 are not indicative of a significant release. Furthermore, the detections are assessed to be representative of the maximum concentrations in the soil as the samples were collected beneath the Engine Room and Exhaust Stack.

No PRGs exist for TPH or its subcategories (i.e., TPH_g, TPH_d, and TPH_m). VOCs with PRG values were not detected above laboratory reporting limits, and none of the PAHs exceeded their respective residential PRG levels.

Risk screening was performed to evaluate risks associated with potential exposures to detected analytes (PAHs) in the soil at PRL 445. The methodology for risk screening is presented in Section 3.3 of the Summary Report and results are presented in Table 3.

The cumulative maximum carcinogenic risk due to potential exposure to maximum detected concentrations of PAHs at PRL 370 is 4.0E-07, which is below the EPA point of departure risk level of 10^{-6}. The cumulative maximum noncancer hazard associated with potential exposure to maximum detected concentrations of PAHs is expressed as hazard index (HI) of 9.1E-05, which is below the target HI of 1.

4. Conclusions and Recommendations

The primary objective of investigations conducted at PRL 445 was to assess whether a release of hazardous substances or pollutants into the environment has occurred. A review of available records, VSIs, and soil sampling indicate that no significant release of hazardous substances or pollutants has occurred at PRL 445. The concentration of TPH in the soil sample does not indicate that there has been a significant release of hydrocarbons to the soil via the Engine Room and Exhaust Stack. VOCs were not detected above laboratory reporting limits in the soil sample. The detected concentrations of all chemicals of concern (PAHs) were less than their residential PRG levels, and are not indicative of release. The cancer risk at PRL 445 is less than the EPA point of departure value of 10^{-6}. Additionally, the noncancer risk at this PRL is less than the target HI of 1. Therefore, no further investigation is recommended for PRL 445.

5. References

Drawing: Repair Test Cell "C" Building 447: Plan, Legend & Notes. NAVFAC Dwg. No. 6176200. 13 July 1989.

Drawing: Remove Miscellaneous Size Abandoned USTs at MCAS El Toro, CA, Tank Nos 445A, 445B & 445C.

Drawing: Turbo-jet Engine Test Facility; Tank Nos 445A, 445B & 445C. 4 June 1957.

Drawing: Buildings 445 & 447, Connection of Jet Test Cells, Cardox CO_2 System to Station Fire Alarm System.

Drawing: Bldg. 447- Jet Engine Test Cell.

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OHM Remediation Services Corp. 1997. *Tank Removal and Site Closure Report, USTs 445A and 445B and OWS 445, Marine Corps Air Station El Toro, California.* September.

Southwest Division, Naval Facilities Engineering Command (NFECSW SDIEGO). 2003. *Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* San Diego, CA. September.

Tables

Table 1: Sampling and Analyses Summary – PRL 445

Analytical Group and Method[a]	Sample Location	HA1	HA2
	EPA ID	LJ348	LJ349
	Sample Depth (ft bgs)	3.5-4	3.5-4
	Sampling Technique	Hand Auger	Hand Auger
VOCs 8260B		X	X
PAHs 8270-SIM		X	X
TPH[b] 8015B		X	X

Notes:
ft bgs= feet below ground surface
SIM= selective ion monitoring
X = analysis was performed for the specified analyte.
[a] Analysis was in general accordance with the listed methods provided in EPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
[b] Analytical results for TPH were reported as TPH as gasoline (TPH_g) TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

Table 2: Analytical Results Summary - PRL 445

Analyte	MCAS El Toro Background Concentrations (95th Quantile)[a]	MCAS El Toro Anthropogenic Reference Level		Residential Soil PRG[b]	Sample Location	PRL445-HA1	PRL445-HA2
					Sample Depth	3.5-4 feet bgs	3.5-4 feet bgs
		Maximum Value	95% UCL		Sample Name	LJ348	LJ349
Total Petroleum Hydrocarbons (mg/kg)							
TPH as Motor Oil	--	--	--	--		4 J	1 J
Poynuclear Aromatic Hydrocarbons (PAHs) (µg/kg)							
2-Methylnaphthalene	--	--	--	--		33 U	2 J
Acenaphthene	--	4	--	3.7E+06		33 U	1 J
Acenaphthylene	--	4	--	--		33 U	7 J
Anthracene	--	8	--	2.2E+07		33 U	7 J
Benz(a)anthracene	--	70	22	6.2E+02		33 U	19 J
Benzo(a)pyrene	--	110	27	6.2E+01		33 U	17 J
Benzo(b)fluoranthene	--	95	28	6.2E+02		33 U	18 J
Benzo(g,h,i)perylene	--	95	29	--		33 U	7 J
Benzo(k)fluoranthene[c]	--	100	24	3.8E+02		33 U	7 J
Chrysene[c]	--	100	31	3.8E+03		33 U	28 J
Dibenz(a,h)anthracene	--	30	8	6.2E+01		33 U	2 J
Fluoranthene	--	150	45	2.3E+06		33 U	52
Fluorene	--	--	--	2.7E+06		33 U	5 J
Indeno(1,2,3-Cd)Pyrene	--	84	21	6.2E+02		33 U	7 J
Naphthalene[c]	--	2	--	1.7E+03		33 U	2 J
Phenanthrene	--	65	18	--		33 U	77
Pyrene	--	140	41	2.3E+06		33 U	70

Notes

-- = Value does not exist

J = Indicates an estimated value

µg/kg = microgram per kilogram

mg/kg = milligram per kilogram

U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

[a] Source: BNI 1996

[b] Analytical results were compared to EPA Region 9 PRGs (2004), with the exception of lead (see note c).

[c] Analytical results for benzo(k)fluranthene, chrysene, and naphthalene were compared to Cal-Modified PRG (2004) since they are significantly more protective than corresponding EPA Region 9 PRGs.

Table 3: Risk Screening Results - PRL 445

Chemical of Potential Concern	Maximum EPC	Carcinogenic PRG[a]	Noncarcinogenic PRG[a]	Risk Corresponding to Maximum EPC			
				Carcinogenic		Noncarcinogenic	
				Excess Cancer Risk[b]	Percent Contribution to Cancer Risk[c]	Hi[d]	Percent Contribution to Noncancer Risk[c]
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/kg)							
2-Methylnaphthalene	2	--	--	--	--	--	--
Acenaphthene	1	--	3.7E+06	--	--	2.7E-07	0.3%
Acenaphthylene	7	--	--	--	--	--	--
Anthracene	7	--	2.2E+07	--	--	3.2E-07	0.4%
Benz(a)anthracene	19	6.2E+02	--	3.1E-08	7.6%	--	--
Benzo(a)pyrene	17	6.2E+01	--	2.7E-07	67.8%	--	--
Benzo(b)fluoranthene	18	6.2E+02	--	2.9E-08	7.2%	--	--
Benzo(g,h,i)perylene	7	--	--	--	--	--	--
Benzo(k)fluoranthene[c]	7	3.8E+02	--	1.9E-08	4.6%	--	--
Chrysene[c]	28	3.8E+03	--	7.4E-09	1.8%	--	--
Dibenz(a,h)anthracene	2	6.2E+01	--	3.2E-08	8.0%	--	--
Fluoranthene	52	--	2.3E+06	--	--	2.3E-05	24.9%
Fluorene	5	--	2.7E+06	--	--	1.8E-06	2.0%
Indeno(1,2,3-Cd)Pyrene	7	6.2E+02	--	1.1E-08	2.8%	--	--
Naphthalene	2	1.7E+03	5.6E+04	1.2E-09	0.3%	3.6E-05	39.3%
Phenanthrene	77	--	--	--	--	--	--
Pyrene	70	--	2.3E+06	--	--	3.0E-05	33.2%
		Cumulative Maximum Risk		**4.0E-07**		**9.1E-05**	

Notes:

EPC = exposure point concentration

µg/kg= microgram per kilogram

mg/kg =milligram per kilogram

[a] U.S. EPA Region 9 PRGs (2004).

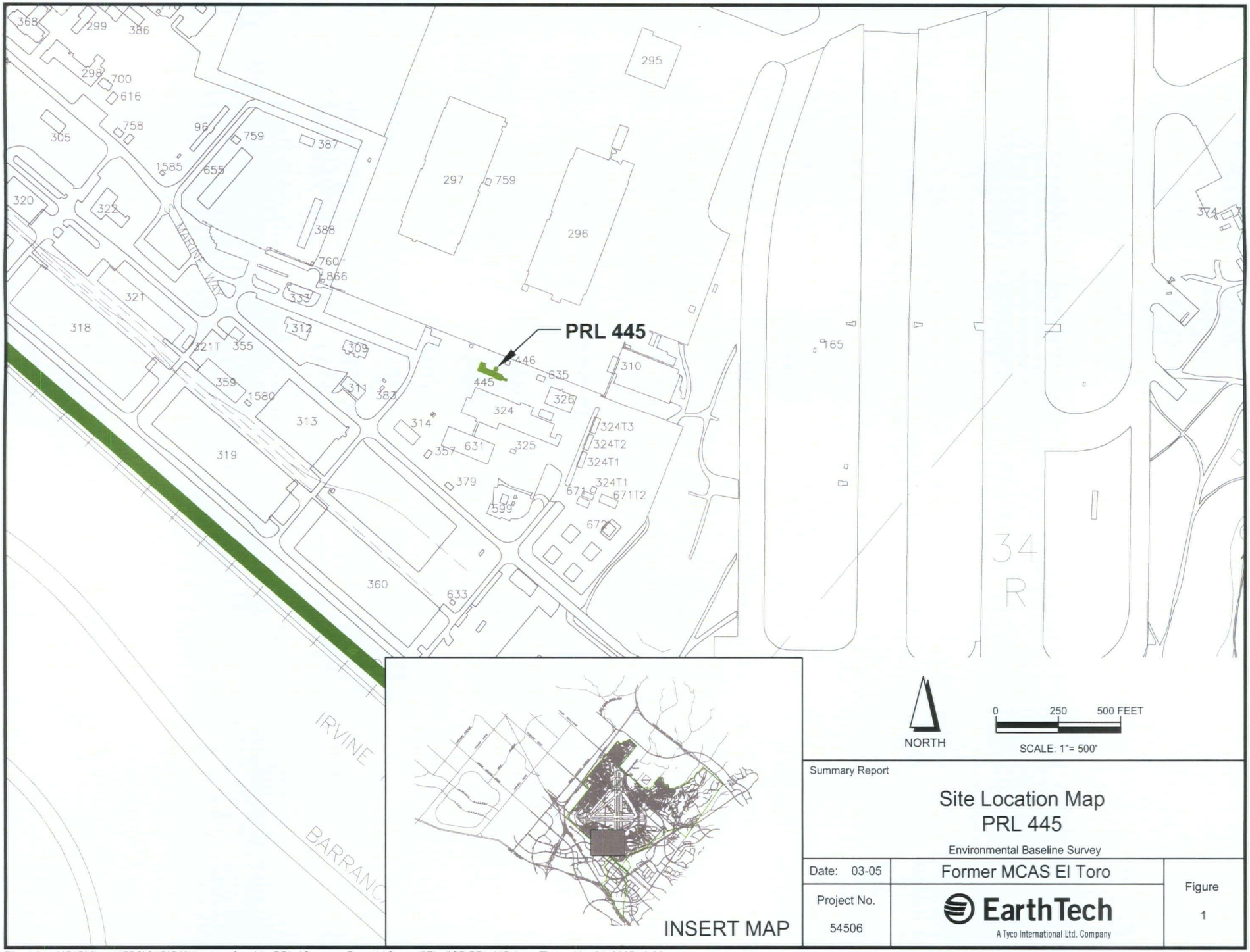
[b] Excess cancer risk = 1E-06 x (Maximum EPC/Carcinogenic PRG).

[c] With respect to cumulative excess cancer risk or hazard index (including metals with background).

[d] HI = Maximum EPC / Noncarcinogenic PRG.

[e] Cal-Modified Carcinogenic PRG (2004) was used for lead for excess cancer risk calculation since it is significantly more protective than corresponding EPA Region 9 PRG.

Figures



Summary Report

Site Location Map
PRL 445

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 1
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

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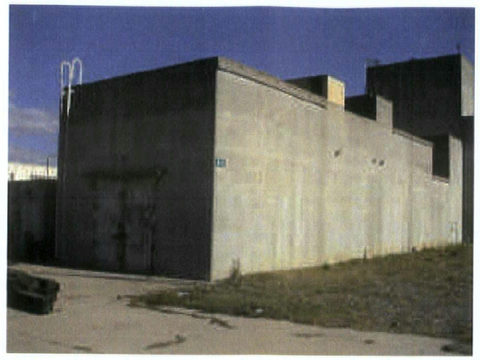
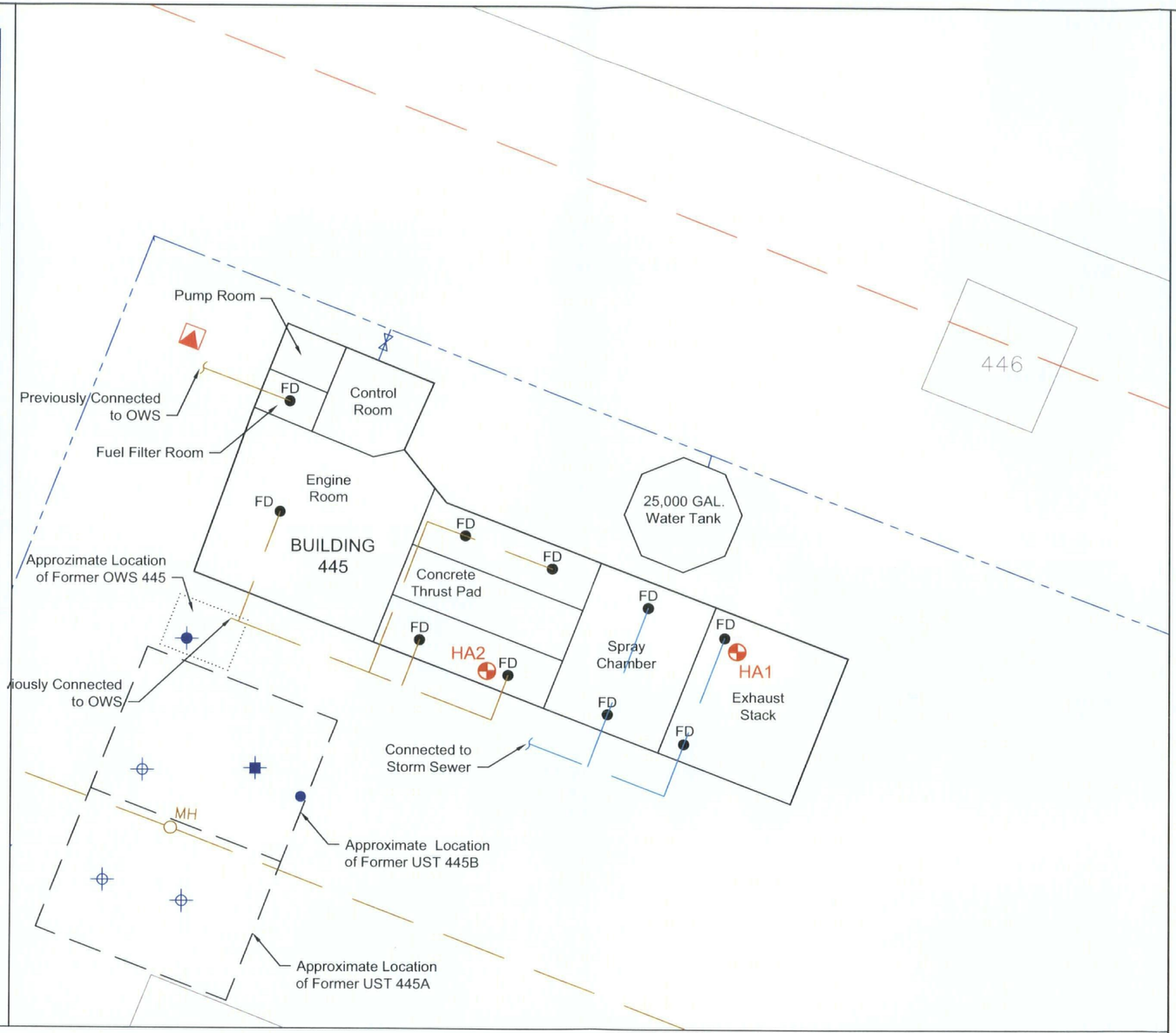


Building 445
(Facing East)

Filled-in Floor Drain



LEGEND:

- Sanitary Sewer
- Water Line
- Electrical Line
- Storm Sewer
- HA5 — Proposed Soil Sample Location
- MH — Manhole
- Transformer
- Water Valve
- FD — Floor Drain (Filled in)

- Approximate 1997 Soil Sample Location (Sample Depths: 12.5 ft bgs; Analytes: TPH,BTEX)
- Approximate 1997 Soil Sample Locations (Sample Depths: 12 ft bgs; Analytes: TPH, VOCs)
- Approximate 1997 Soil Sample Location (Sample Depths: 8.5 ft bgs; Analytes: TPH, BTEX)
- Approximate 1993 (RFA) Soil Boring Location (Sample Depths: 5 - 25 ft bgs; Analytes: TPH, VOCs)

NORTH
0 10' 20 FEET
SCALE: 1"= 20'

Note: Features and Interior Layout are Approximate and May Not be to Scale

Summary Report

Site Plan
PRL 445

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure
Project No. 54506	EarthTech, A Tyco International Ltd. Company	2

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Appendix A
Validated Laboratory Analytical Data Reports

Validated Analytical Data for PRL 445

		Sample ID:	LJ348	LJ349
		Location ID:	PRL445-HA2	PRL445-HA1
		Sample Type:	SS	SS
		Sample Depth:	3.5-4	3.5-4
		Sample Date:	05-Jan-05	05-Jan-05
Parameter	Units	Analytical Method[1]		
Total Petroleum Hydrocarbons				
TPH as Diesel Fuel	mg/kg	8015B DRO	13 U	13 U
TPH as Motor Oil	mg/kg	8015B DRO	4 J	1 J
TPH as Gasoline	mg/kg	8015B GRO	13 U	11 U
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	ug/kg	8260B	6.6 U	5.2 U
1,1,1-Trichloroethane	ug/kg	8260B	6.6 U	5.2 U
1,1,2,2-Tetrachloroethane	ug/kg	8260B	6.6 U	5.2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	8260B	6.6 U	5.2 U
1,1,2-Trichloroethane	ug/kg	8260B	6.6 U	5.2 U
1,1-Dichloroethane	ug/kg	8260B	6.6 U	5.2 U
1,1-Dichloroethene	ug/kg	8260B	6.6 U	5.2 U
1,2-Dichloroethane	ug/kg	8260B	6.6 U	5.2 U
1,2-Dichloropropane	ug/kg	8260B	6.6 U	5.2 U
1,2-Dichlorotetrafluoroethane	ug/kg	8260B	6.6 U	5.2 U
2-Butanone	ug/kg	8260B	130 U	100 U
2-Hexanone	ug/kg	8260B	66 U	52 U
4-Methyl-2-Pentanone	ug/kg	8260B	66 U	52 U
Acetone	ug/kg	8260B	130 UJ	100 UJ
Benzene	ug/kg	8260B	6.6 U	5.2 U
Bromodichloromethane	ug/kg	8260B	6.6 U	5.2 U
Bromoform	ug/kg	8260B	6.6 U	5.2 U
Bromomethane	ug/kg	8260B	6.6 U	5.2 U
Carbon Disulfide	ug/kg	8260B	6.6 U	5.2 U
Carbon Tetrachloride	ug/kg	8260B	6.6 U	5.2 U
Chlorobenzene	ug/kg	8260B	6.6 U	5.2 U
Chlorodibromomethane	ug/kg	8260B	6.6 U	5.2 U
Chloroethane	ug/kg	8260B	6.6 U	5.2 U
Chloroform	ug/kg	8260B	6.6 U	5.2 U
Chloromethane	ug/kg	8260B	6.6 U	5.2 U
cis-1,2-Dichloroethene	ug/kg	8260B	6.6 U	5.2 U
cis-1,3-Dichloropropene	ug/kg	8260B	6.6 U	5.2 U
Dichlorodifluoromethane (F12)	ug/kg	8260B	6.6 U	5.2 U
Diisopropyl Ether	ug/kg	8260B	6.6 U	5.2 U
Ethylbenzene	ug/kg	8260B	6.6 U	5.2 U
Ethyl-tert-butyl ether (ETBE)	ug/kg	8260B	6.6 U	5.2 U
Methyl tert-butyl ether	ug/kg	8260B	6.6 U	5.2 U
Methylene Chloride	ug/kg	8260B	6.6 U	5.2 U

Validated Analytical Data for PRL 445

		Sample ID:	LJ348	LJ349
		Location ID:	PRL445-HA02	PRL445-HA01
		Sample Type:		
		Sample Depth:	3.5-4	3.5-4
		Sample Date:	05-Jan-05	05-Jan-05
Parameter	Units	Analytical Method[1]		
Styrene	ug/kg	8260B	6.6 U	5.2 U
tert-Amyl methyl ether (TAME)	ug/kg	8260B	6.6 U	5.2 U
tertiary-Butyl alcohol (TBA)	ug/kg	8260B	27 UJ	21 UJ
Tetrachloroethene	ug/kg	8260B	6.6 U	5.2 U
Toluene	ug/kg	8260B	6.6 U	5.2 U
Total xylenes	ug/kg	8260B	20 U	16 U
trans-1,2-Dichloroethene	ug/kg	8260B	6.6 U	5.2 U
trans-1,3-Dichloropropene	ug/kg	8260B	6.6 U	5.2 U
Trichloroethene	ug/kg	8260B	6.6 U	5.2 U
Trichlorofluoromethane	ug/kg	8260B	6.6 U	5.2 U
Vinyl chloride	ug/kg	8260B	6.6 U	5.2 U
Others				
Moisture	%	ASTM D 2216	24.8	22
Polynuclear Aromatic Hydrocarbons				
2-Fluorobiphenyl	%	PAH-SIM	58	80
Nitrobenzene-D5	%	PAH-SIM	56	77
Terphenyl-D14	%	PAH-SIM	78	89
2-Methylnaphthalene	ug/kg	PAH-SIM	33 U	2 J
Acenaphthene	ug/kg	PAH-SIM	33 U	1 J
Acenaphthylene	ug/kg	PAH-SIM	33 U	7 J
Anthracene	ug/kg	PAH-SIM	33 U	7 J
Benz(a)anthracene	ug/kg	PAH-SIM	33 U	19 J
Benzo(a)pyrene	ug/kg	PAH-SIM	33 U	17 J
Benzo(b)fluoranthene	ug/kg	PAH-SIM	33 U	18 J
Benzo(g,h,i)perylene	ug/kg	PAH-SIM	33 U	7 J
Benzo(k)fluoranthene	ug/kg	PAH-SIM	33 U	7 J
Chrysene	ug/kg	PAH-SIM	33 U	28 J
Dibenz(a,h)anthracene	ug/kg	PAH-SIM	33 U	2 J
Fluoranthene	ug/kg	PAH-SIM	33 U	52
Fluorene	ug/kg	PAH-SIM	33 U	5 J
Indeno(1,2,3-Cd)Pyrene	ug/kg	PAH-SIM	33 U	7 J
Naphthalene	ug/kg	PAH-SIM	33 U	2 J
Phenanthrene	ug/kg	PAH-SIM	33 U	77
Pyrene	ug/kg	PAH-SIM	33 U	70

Notes:

[1] = *Environmental Protection Agency Method unless otherwise noted.*

U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

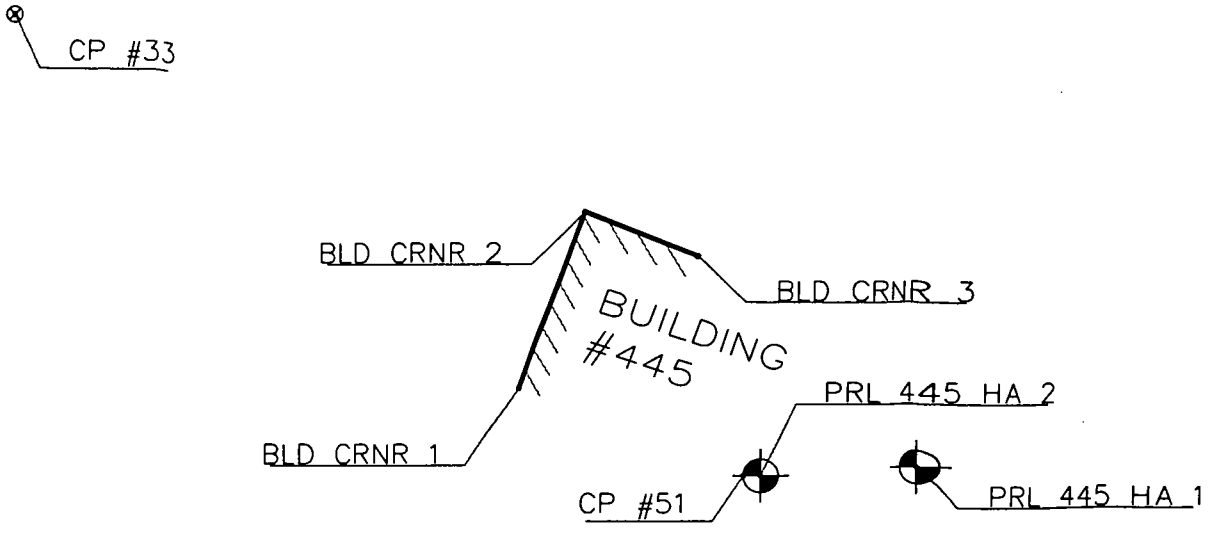
J = Indicates an estimated value

UJ = Indicates the compound or analyte was analyzed for but was not detected. The sample detection limit is an estimated value.

SS = Soil Sample

ASTM = American Society of Testing and Materials

Appendix B
Land Surveying Data



PRL AND NOTABLE FEATURES LOCATIONS			
STATION	NORTHING	EASTING	ELEVATION
BLD CRNR 1	2188002.76	6109876.27	
BLD CRNR 2	2188039.51	6109889.77	
BLD CRNR 3	2188030.26	6109912.27	
CP #33	2188079.77	6109770.90	285.90
CP #51	2187984.47	6109921.89	287.64
PRL 445 HA 1	2187986.26	6109956.90	287.66
PRL 445 HA 2	2187984.49	6109925.32	287.65

DCA CIVIL ENGINEERING GROUP
17625 Crenshaw Blvd., Ste. 300
Torrance, California 90504
Tel: (310) 327-0018
Fax: (310)327-0175
www.dcacivileng.com

POTENTIAL RELEASE LOCATION SKETCH

SCALE: 1"= 40'	DATE: 02-16-05
BY: JCL	JOB NO.: 04-1058-2227.000-535

Attachment 5
Summary Report
PRL 923

Summary Report for PRL 923, Environmental Baseline Survey

Former Marine Corps Air Station, El Toro, California

March 2005

Prepared for:
Base Realignment and Closure
Program Management Office West
1230 Columbia Street, Suite 1100
San Diego, CA 92101

Prepared by:
Earth Tech, Inc.
841 Bishop Street, Suite 500
Honolulu, HI 96813-3920

Prepared under:
Comprehensive Long-Term Environmental Action Navy
Contract Number N62742-94-D-0048, CTO 0104

CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

MCAS	Marine Corps Air Station
NFECSW SDIEGO	Southwest Division, Naval Facilities Engineering Command
PRG	preliminary remediation goal
PRL	potential release location
TPH	total petroleum hydrocarbons
TPH_d	TPH as diesel
TPH_g	TPH as gasoline
TPH_m	TPH as motor oil
VOC	volatile organic compound
VSI	visual site inspection

1. Background

Potential Release Location (PRL) 923 is associated with Building 923, located in the northeast quadrant of former Marine Corps Air Station (MCAS) El Toro, California (Figure 1). The building was listed as Drop Tank Rinse Facility in the 1997 list, and this was the last known description. Figure 2 shows the plan of Building 923 and the surrounding area.

1.1 Issues and Concerns

Following is the summary of the observations and conclusions of the visual site inspection (VSI) and records review conducted in support of the 2003 Environmental Baseline Survey (NFECSW SDIEGO 2003):

- The building was used as a drop tank rinse facility. During the VSI and subsequent site visits, the concrete floor was observed to be in good condition. No cracks were observed in the concrete; therefore there is a low probability of releases of hazardous chemicals to the underlying soil. Additionally, since the facility is bermed on all four sides, there is a low probability of a release of hazardous chemicals to nearby areas due to runoff from the facility. No further investigation was recommended for these issues.
- A sump was observed in the northwestern portion of the facility. Releases of hazardous substances or pollutants may have occurred to the underlying soil due to rinsing operations. Further evaluation was recommended.

A sampling program was proposed to further investigate the issues identified and assess whether a release to the environment of hazardous substances or pollutants has occurred. A summary of soil sampling activities is presented in Section 2, and the results are presented in Section 3.

2. Sampling and Analysis Summary

Sampling was conducted for evaluation of PRL 923 in January 2005. The sample locations are shown on Figure 2 and a summary of sampling and analyses is provided in Table 1.

One soil sample was collected at location HA1, through the bottom of the sump using a hand auger (see Figure 2). The sample was collected 3.0-3.5 feet below ground surface and analyzed for volatile organic compounds (VOCs) and total petroleum hydrocarbons (TPH). The results for TPH were reported as TPH as gasoline (TPH_g), TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

3. Investigation Results

3.1 Analytical Results and Quality Assurance

The analytical result for the soil sample collected at PRL 923 is presented in Table 2. Appendix A presents the validated laboratory analytical data and Appendix B presents the land surveying data.

Some results were qualified as estimated in the data validation process. These qualifications do not affect the findings or conclusions of this report.

3.2 Result Evaluation and Risk Screening

TPH was detected in the soil sample from location HA1. The contributor to the TPH detection was associated with motor oil and diesel oil. However, the concentration of TPH at HA1 is not indicative

of a significant release. Furthermore, the detection is assessed to be representative of the maximum concentration in soil, as the sample was collected below the bottom of the sump.

No preliminary remediation goals (PRGs) exist for TPH or its subcategories (i.e., TPH_g, TPH_d, and TPH_m). VOCs with PRG values were not detected above laboratory reporting limits. Therefore, no risk screening was conducted for PRL 923.

4. Conclusions and Recommendations

The primary objective of investigation conducted at PRL 923 was to assess whether a release of hazardous substances or pollutants into the environment has occurred. The concentration of TPH in the soil sample does not indicate that there has been a significant release of hydrocarbons to the soil via the sump. VOCs were not detected above laboratory reporting limits in the soil sample. Based on these results, no further investigation is recommended for PRL 923.

5. References

Environmental Protection Agency, United States (EPA). 2004. *SW-846 On-Line, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.*
http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm. Office of Solid Waste.

Geofon, Inc. 2000. *Underground Storage Tank Removal Report, OWS 763A and UST 763B, Marine Corps Air Station (MCAS) El Toro, California.* 12 June.

Southwest Division, Naval Facilities Engineering Command (NFECSW SDIEGO). 1993. *Marine Corps Air Station El Toro, California, Installation Restoration Program, Final Resource Conservation Recovery Act (RCRA), Facility Assessment Report.* San Diego, CA. July.

_____. 2003. *Final Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* San Diego, CA. September.

Tables

Table 1: Sampling and Analyses Summary – PRL 923

Analytical Group and Method[a]	Sample Location	HA1
	EPA ID	LJ362
	Sample Depth (ft bgs)	3-3.5
	Sampling Technique	Hand Auger
VOCs 8260B		X
TPH[b] 8015B		X

Notes:
ft bgs= feet below ground surface
X = analysis was performed for the specified analyte
[a] Analysis was in general accordance with the listed methods provided in EPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
[b] Analytical results for TPH were reported as TPH as gasoline (TPH_g) TPH as diesel (TPH_d), and TPH as motor oil (TPH_m).

Table 2: Analytical Results Summary - PRL 923

Analyte	MCAS El Toro Background Concentrations (95th Quantile)[a]	Residential Soil PRG[b]	Sample Location	PRL923-HA01
			Sample Depth	3-3.5 ft bgs
			Sample Name	LJ362
Total Petroleum Hyrocarbons (mg/kg)				
TPH as Diesel Fuel	--	--		7 J
TPH as Motor Oil	--	--		5 J

Notes:

-- = value does not exist

bgs =below ground surface

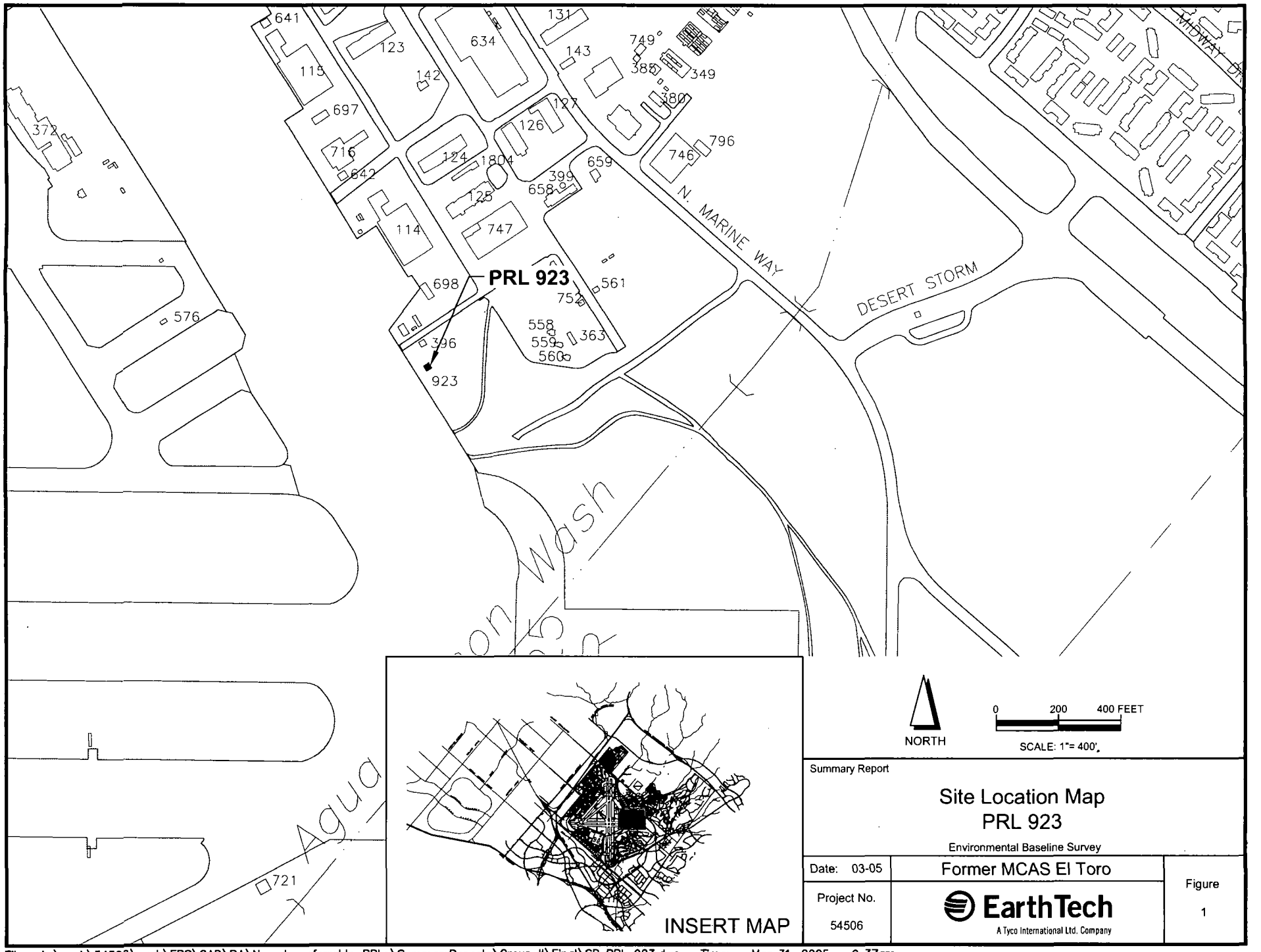
J = Indicates an estimated value

mg/kg =milligram per kilogram

[a] Source: BNI 1996

[b] Analytical results were compared to EPA Region 9 PRGs (2004).

Figures



Summary Report

Site Location Map
PRL 923

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 1
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

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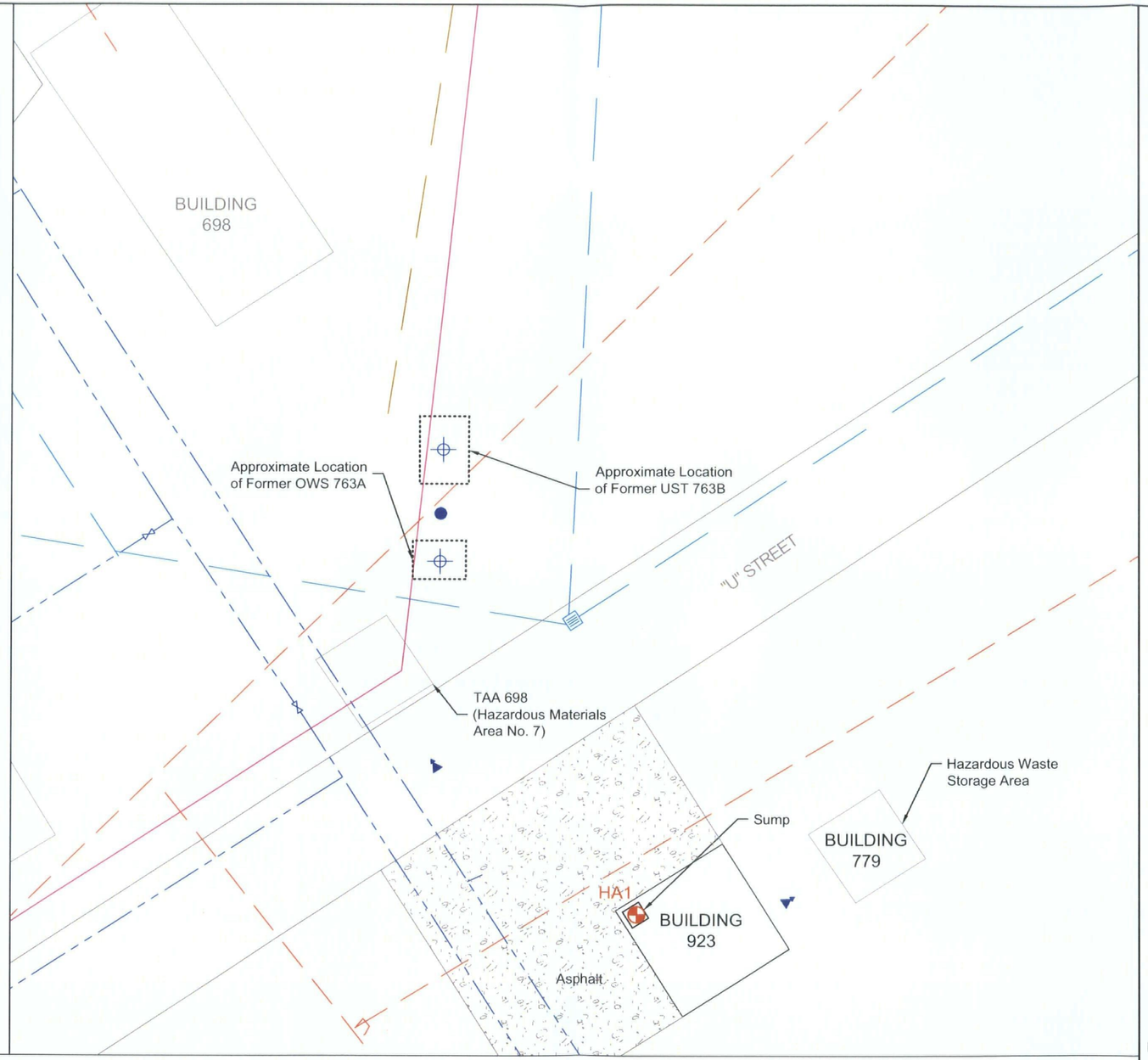
Drop Tank Rinse Facility, Building
(Facing East)

Sump in Northeast Corner of Facility



LEGEND:

- Sanitary Sewer
- Water Line
- Natural Gas Line
- Electrical Line
- Storm Sewer
- HA1 — Proposed Soil Sample Location
- Catch Basin
- Water Valve
- Approximate Soil Sample Locations (Geofon, 2000) (Sample Depths: 7-10 ft bgs; Analytes: TPH, VOCs)
- Approximate Soil Sample Location (NFECSW SDIEGO, 1993) (Sample Depths: 5-25 ft bgs; Analytes: TPH, VOCs)
- Approximate Angle Boring Locations (NFECSW SDIEGO, 1993) (Sample Depths: 10-60 ft bgs; Analytes: TPH, VOCs, SVOCs, Pesticides/PCBs, Metals)

NORTH

0 10' 20 FEET

SCALE: 1"= 20'

Note: Features and Interior Layout are Approximate and May Not be to Scale

Summary Report

Site Plan
PRL 923

Environmental Baseline Survey

Date: 03-05	Former MCAS El Toro	Figure 2
Project No. 54506	EarthTech, A Tyco International Ltd. Company	

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Appendix A
Validated Laboratory Analytical Data Reports

Validated Analytical Data for PRL 923

		Sample ID:	LJ362
		Location ID:	PRL923-HA1
		Sample Type:	SS
		Sample Depth:	3-3.5
		Sample Date:	06-Jan-05
Parameter	Units	Analytical Method[1]	
Total Petroleum Hydrocarbons			
TPH as Diesel Fuel	mg/kg	8015B DRO	7 J
TPH as Motor Oil	mg/kg	8015B DRO	5 J
TPH as Gasoline	mg/kg	8015B GRO	9.1 U
Volatile Organic Hydrocarbons			
1,1,1,2-Tetrachloroethane	ug/kg	8260B	5.6 U
1,1,1-Trichloroethane	ug/kg	8260B	5.6 U
1,1,2,2-Tetrachloroethane	ug/kg	8260B	5.6 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	8260B	5.6 U
1,1,2-Trichloroethane	ug/kg	8260B	5.6 U
1,1-Dichloroethane	ug/kg	8260B	5.6 U
1,1-Dichloroethene	ug/kg	8260B	5.6 U
1,2-Dichloroethane	ug/kg	8260B	5.6 U
1,2-Dichloropropane	ug/kg	8260B	5.6 U
1,2-Dichlorotetrafluoroethane	ug/kg	8260B	5.6 U
2-Butanone	ug/kg	8260B	110 UJ
2-Hexanone	ug/kg	8260B	56 U
4-Methyl-2-Pentanone	ug/kg	8260B	56 U
Acetone	ug/kg	8260B	110 UJ
Benzene	ug/kg	8260B	5.6 U
Bromodichloromethane	ug/kg	8260B	5.6 U
Bromoform	ug/kg	8260B	5.6 U
Bromomethane	ug/kg	8260B	5.6 U
Carbon Disulfide	ug/kg	8260B	5.6 U
Carbon Tetrachloride	ug/kg	8260B	5.6 U
Chlorobenzene	ug/kg	8260B	5.6 U
Chlorodibromomethane	ug/kg	8260B	5.6 U
Chloroethane	ug/kg	8260B	5.6 U
Chloroform	ug/kg	8260B	5.6 U
Chloromethane	ug/kg	8260B	5.6 U
cis-1,2-Dichloroethene	ug/kg	8260B	5.6 U
cis-1,3-Dichloropropene	ug/kg	8260B	5.6 U
Dichlorodifluoromethane (F12)	ug/kg	8260B	5.6 U
Diisopropyl Ether	ug/kg	8260B	5.6 U
Ethylbenzene	ug/kg	8260B	5.6 U
Ethyl-tert-butyl ether (ETBE)	ug/kg	8260B	5.6 U
Methyl tert-butyl ether	ug/kg	8260B	5.6 U
Methylene Chloride	ug/kg	8260B	5.6 U

Validated Analytical Data for PRL 923

		Sample ID:	LJ362
		Location ID:	PRL923-HA01
		Sample Type:	SS
		Sample Depth:	3-3.5
		Sample Date:	06-Jan-05
Parameter	Units	Analytical Method[1]	
Styrene	ug/kg	8260B	5.6 U
tert-Amyl methyl ether (TAME)	ug/kg	8260B	5.6 U
tertiary-Butyl alcohol (TBA)	ug/kg	8260B	22 UJ
Tetrachloroethene	ug/kg	8260B	5.6 U
Toluene	ug/kg	8260B	5.6 U
Total xylenes	ug/kg	8260B	17 U
trans-1,2-Dichloroethene	ug/kg	8260B	5.6 U
trans-1,3-Dichloropropene	ug/kg	8260B	5.6 U
Trichloroethene	ug/kg	8260B	5.6 U
Trichlorofluoromethane	ug/kg	8260B	5.6 U
Vinyl chloride	ug/kg	8260B	5.6 U
Others			
Moisture	%	ASTM D 2216	10

Notes:

[1] = Environmental Protection Agency Method unless otherwise noted.

U = Indicates the compound or analyte was analyzed for but was not detected at or above the stated limit.

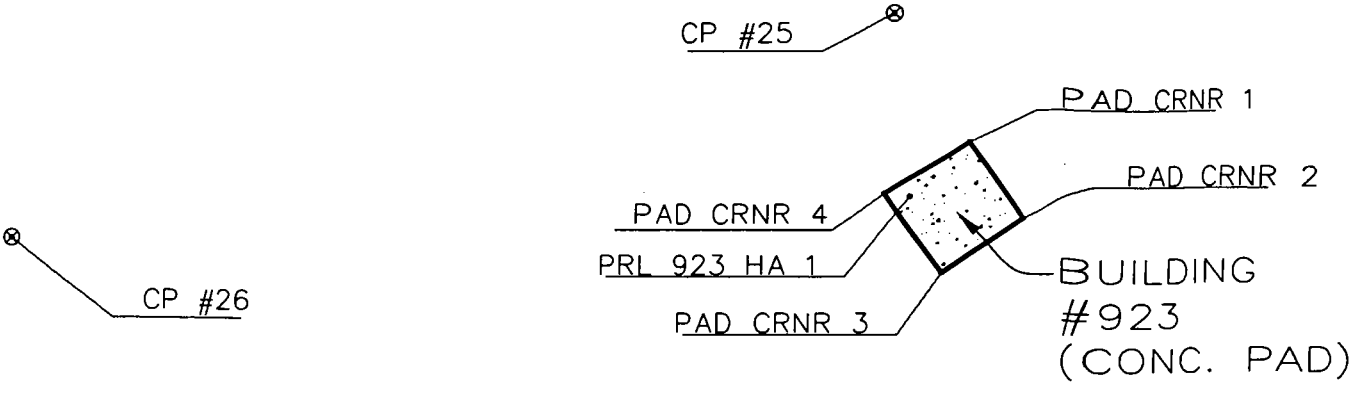
J = Indicates an estimated value

UJ = Indicates the compound or analyte was analyzed for but was not detected. The sample detection limit is an estimated value.

SS = Soil Sample

ASTM = American Society of Testing and Materials

Appendix B
Land Surveying Data



PRL AND NOTABLE FEATURES LOCATIONS			
STATION	NORTHING	EASTING	ELEVATION
PAD CRNR 1	2192243.48	6114644.01	391.55
PAD CRNR 2	2192227.52	6114655.00	391.87
PAD CRNR 3	2192216.22	6114638.53	391.46
PAD CRNR 4	2192232.68	6114627.24	391.22
CP #25	2192270.26	6114628.97	390.37
CP #26	2192223.02	6114447.70	388.30
PRL 923 HA 1	2192232.10	6114632.39	390.75

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POTENTIAL RELEASE LOCATION SKETCH

SCALE: 1"= 40'	DATE: 02-16-05
BY: JCL	JOB NO.: 04-1058-2227.000-535